Invacare® **Action® 3 NG**

MAINTENANCE AND ADJUSTMENT

Yes, you can.®

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SECTION 1—TROUBLESHOOTING AND MAINTENANCE GUIDELINES

NOTE: Once a year, take your wheelchair to a qualified dealer for a thorough inspection and servicing. Regular cleaning will reveal loose or worn parts and enhance the smooth operation of your wheelchair. To operate properly and safely, your wheelchair must be cared for just like any other vehicle. Routine maintenance will extend the life and efficiency of your wheelchair. Initially and at least every twelve months, follow these maintenance procedures:

Troubleshooting

CHAIR VEERS LEFT/RIGHT	SLUGGISH TURN/PERFORMANCE	CASTERS FLUTTER	SQUEAKS AND RATTLES	LOOSENESS IN CHAIR	CHAIR 3 WHEELS	SOLUTIONS
X	X	X			X	If pneumatic tyres, check for correct equal pressure.
	X	X	X	X		Check for loose stem nuts/screws.
X	X	X				Check castor angle adjustment.
X		X				Check that castor contact ground at the same time.

Maintenance guide lines:

Safety Inspection Checklists

Initial adjustments should be made to suit the personal body structure needs and preferences of the user. Thereafter follow these maintenance procedures:

Inspect/Adjust Initially (User or Attendant)

- ❑ Wheelchair rolls straight (no excessive drag or pull to one side).
- ❑ Ensure all hardware is tight (see page 7).
- ❑ All fasteners on clothing guards are secure.
- ❑ Arms are secure but easy to release and locking systems engage properly.
- ❑ Adjustable height arms operate and lock securely.
- ❑ Armrest armpad sits flush against arm tube.
- ❑ Seat and/or back upholstery have no rips.
- ❑ Inspect adjustable angle back attaching hardware is securely tightened.
- ❑ Ensure hand grips are secure to backrest canes.
- ❑ Sealed bearings and axle nut tension are correct.
- ❑ No excessive side movement or binding when rear wheels are lifted and spun.

Inspect/Adjust Initially (user or attendant)

- ❑ Quick-release axles lock properly (see page 28).
- ❑ Inspect handrims for signs of rough edges or peeling finish.
- ❑ Inspect for broken spokes.
- ❑ Wheel/fork assembly has proper tension when castor is spun. Castor should come to a gradual stop.
- ❑ Wheel bearings are clean and free of moisture.
- ❑ Loosen/tighten locknut if wheel wobbles noticeably or binds to a stop
- ❑ Ensure all castor/wheel/fork/head tube fasteners are secure (see pages 7 & 33).
- ❑ Wheel brakes do not interfere with tyres when rolling.
- ❑ Wheel brakes pivot point are free of wear and looseness.
- ❑ Wheel brakes are easy to engage.
- ❑ Inspect tyres/castors for flat spots and wear.
- ❑ Check pneumatic tyres for proper inflation (recommended tyre pressure is listed on the side wall of the tyre).
- ❑ Clean quick-release axles with a Teflon® lubricant.
- ❑ Ensure axles are free from dirt, lint, etc.
- ❑ Ensure roller bearings are free from dirt, lint, etc.
- ❑ Adjust wheel brakes as tires wear.
- ❑ Clean and wax all parts.
- ❑ Clean upholstery and armrests.
- ❑ Ensure castors are free of debris.

Inspect/Adjust Weekly (User or Attendant)

- ❑ Wheelchair rolls straight (no excessive drag or pull to one side).
- ❑ Quick-release axles lock properly (see page 28).
- ❑ Inspect for broken spokes.
- ❑ Wheel/fork assembly has proper tension when castor is spun. Castor should come to a gradual stop.
- ❑ Inspect tyres/castors for flat spots and wear.
- ❑ Check pneumatic tyres for proper inflation (recommended tyre pressure is listed on the side wall of the tyre).
- ❑ Ensure castors are free of debris.

Inspect/Adjust Monthly (User or Attendant)

- ❑ Inspect seat positioning strap for any signs of wear. Ensure buckle latches. Verify hardware that attaches strap to frame is secure and undamaged. Replace if necessary.
- ❑ Loosen/tighten locknut if wheel wobbles noticeably or binds to a stop.

Inspect/Adjust Monthly (User or Attendant)

- ❑ Wheel bearings are clean and free of moisture.
- ❑ Wheel brakes do not interfere with tyres when rolling.
- ❑ Wheel brake pivot point are free of wear and looseness.
- ❑ Ensure all castor/wheel/fork/head tube fasteners are secure (see pages 7 & 31).
- ❑ Ensure all hardware is tight (see page 7).
- ❑ Ensure hand grips are secure to backrest canes.
- ❑ Ensure castors are free of debris.

Inspect/Adjust every twelve months (Repairer or Dealer)

- ❑ Wheelchair rolls straight (no excessive drag or pull to one side).
- ❑ Arms are secure but easy to release and locking systems engage properly.
- ❑ Adjustable height arms operate and lock securely.
- ❑ Armrest armpad sits flush against arm tube.
- ❑ All fasteners on clothing guards are secure.
- ❑ Seat and/or back upholstery have no rips.
- ❑ Inspect the backrest attaching hardware and mechanisms are securely tightened.
- ❑ No excessive side movement or binding when rear wheels are lifted and spun.
- ❑ Inspect handrims for signs of rough edges or peeling finish.
- ❑ Inspect side frame and cross brace for signs of cracks, flaked paint or deformed metal work.
- ❑ Inspect tyres/castors for flat spots and wear.
- ❑ Check pneumatic tyres for proper inflation (recommended tyre pressure is listed on the side wall of the tyre).
- ❑ Wheel brake pivot point are free of wear and looseness.
- ❑ Clean upholstery and armrests.
- ❑ Sealed bearings and axle nut tension are correct.
- ❑ Wheel/fork assembly has proper tension when castor is spun. Castor should come to a gradual stop.
- ❑ Loosen/tighten locknut if wheel wobbles noticeably or binds to a stop.
- ❑ Wheel bearings are clean and free of moisture.
- ❑ Wheel brakes are easy to engage.
- ❑ Clean quick-release axles with a Teflon lubricant.
- ❑ Ensure axles are free from dirt, lint, etc.
- ❑ Ensure roller bearings are free from dirt, lint, etc.
- ❑ Adjust wheel brakes as tyres wear.
- ❑ Clean and wax all parts.
- ❑ Ensure castors are free of debris.

⚠ WARNING

After ANY adjustments, repair or service and before use, make sure all attaching hardware is tightened securely - otherwise injury or damage may occur.

CAUTION

DO NOT over tighten hardware attaching to the frame. This could cause damage to the frame tubing.

Tightening torques

The tightening torques stated in the following table are dependent on the thread diameters for the nuts and bolts for which no special values are determined. All values apply to dry and grease-free threads.

Thread	M4	M5	M6	M8	M10
Tightening torque in Nm maximum	3 Nm	6 Nm	10 Nm	25 Nm	49 Nm

Caution: All other nuts not noted here must be tightened FINGERTIGHT !

Suggested Maintenance Procedures

1. Before using your wheelchair, make sure all nuts and bolts are tight. Check all parts for damage or wear and replace. Check all parts for proper adjustment.
2. Keep quick release axles free of dirt and lint to ensure positive locking and proper operation. Refer to Adjusting Quick Release Axles on section 5.

⚠ WARNING

DO NOT use WD-40, 3-in- 1 oil, or other penetrating lubricants on quick-release axles. Otherwise, binding and/or damage to the wheelchair may occur.

3. Clean quick release axles once a week with a Teflon lubricant.

⚠ WARNING

DO NOT use your wheelchair unless it has the proper tyre pressure (BAR, KPa or P.S.I.).

DO NOT over inflate the tyres. Failure to follow these suggestions may cause the tyre to explode and cause bodily harm. The recommended tyre pressure is on the sidewall of the tyre.

4. Recommended tyre pressure is listed on the sidewall of the tyre (BAR, KPa or P.S.I.).

CAUTION

As with any vehicle, the wheels and tires should be checked periodically for cracks and wear, and should be replaced if damaged.

5. The wheels, castors and tyres should be checked periodically for cracks and wear, and should be replaced when necessary.

6. Regularly check for loose spokes in the rear wheels. If loose, have them adjusted.
7. Periodically check handrims to ensure they are secured to the rear wheels. Refer to Replacing Handrims on section 5.
8. Periodically check castor wheel bearings to make sure they are clean and free from moisture. Use a Teflon® lubricant if necessary.
9. Check upholstery for sagging, rips or tears.
10. Clean upholstery with mild soap and water.

Stability Warning

The seat height, seat depth, back angle, seating system/upholstery, size/position of the rear wheels, size/position of the front castors, seating options (e.g. headrest, back bag, …) as well as the user condition directly relate to the stability of the wheelchair. Any change to one or any combination of the nine may cause the wheelchair to increase/decrease in stability.

NOTE: When changes to the left hand column occur, follow across the chart and refer to the X procedure to maintain the proper stability, safety and handling of the wheelchair.	SEAT HEIGHT	SEAT DEPTH	BACK ANGLE	SEATING SYSTEM/UPHOLSTERY	CASTOR SIZE	CASTOR POSITION	REAR WHEEL SIZE	REAR WHEEL POSITION	USER CONDITION	WHEEL BRAKES	ANTI-TIPPERS
SEAT HEIGHT	•	X	X	X	X	X	X	X	N/A	N/A	N/A
SEAT DEPTH	X	•	X	X	X	X	X	X	N/A	N/A	N/A
BACK ANGLE	X	X	•	X	X	X	X	X	N/A	N/A	N/A
SEATING SYSTEM/UPHOLSTERY	X	X	X	•	X	X	X	X	X	N/A	N/A
CASTOR SIZE	X	N/A	X	N/A	•	X	X	X	N/A	X	X
CASTOR POSITION	X	N/A	X	N/A	X	•	X	X	N/A	X	X
REAR WHEEL SIZE	X	N/A	X	N/A	X	X	•	X	N/A	X	X
REAR WHEEL POSITION	X	N/A	X	N/A	X	X	X	•	N/A	X	X
USER CONDITION	X	X	X	X	X	X	X	X	•	N/A	N/A

Seat-to-floor heights have specific positions depending on rear wheel size, rear wheel position, front caster size/position and seat-to-floor angle.

These adjustments MUST be performed by a qualified technician.Refer to sections 5 & 6.

SECTION 2—FRONT HANGERS

⚠ WARNING

After ANY adjustments, repair or service and before use, make sure all attaching hardware is tightened securely - otherwise injury or damage may occur.

A 5 cm clearance between the bottom of the footplate and the ground/floor MUST be maintained at all times.

Adjusting Footrest Height

NOTE: For this procedure, refer to FIGURE 2.1.

1. Remove calf strap, if so equipped.
2. Unscrew locking screw.
3. Position the footrest assembly to the desired height.

NOTE: A 5 cm clearance between the bottom of the footplate and the ground/floor MUST be maintained at all times.

4. If the distance between the bottom of footplate and the ground/floor is not 5 cm minimum, adjust footrest tube accordingly.
5. Using the locking screw, secure the footrest tube to the footrest support. Securely tighten.
6. If necessary, repeat STEPS 2-5 to adjust remaining footrest.
7. Reinstall the calf strap, if so equipped.

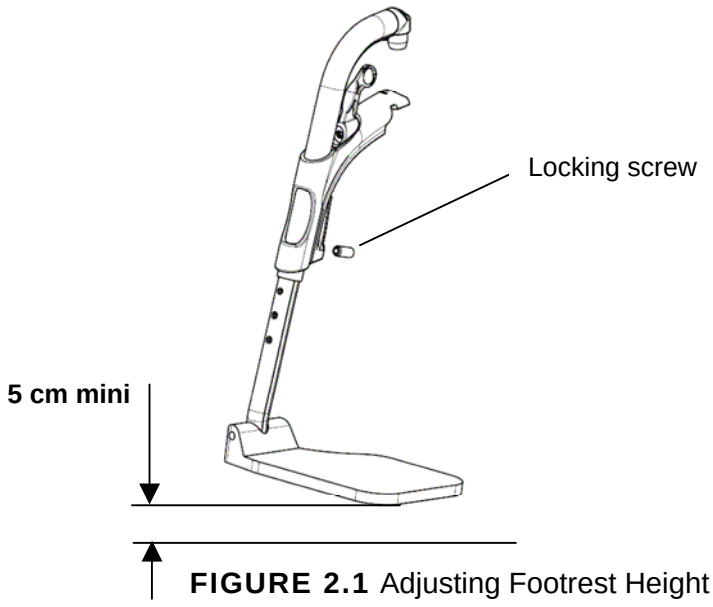


FIGURE 2.1 Adjusting Footrest Height

Replacing Heel Strap

NOTE: For this procedure, refer to FIGURE 2.2.

1. Remove the locking screw that secure the footrest tube to the footrest support.
2. Remove the lower footrest assembly.
3. Remove the mounting screw, strap pin that secure the heel strap to the footplate.
4. Slide heel strap over footrest tube.

NOTE: When securing the heel strap to the footrest assembly, tighten the mounting screw and strap pin until they are secure.

5. Using the mounting screw, strap pin, secure the heel strap to the footplate.
6. Using the locking screw, secure the footrest tube to the footrest support.

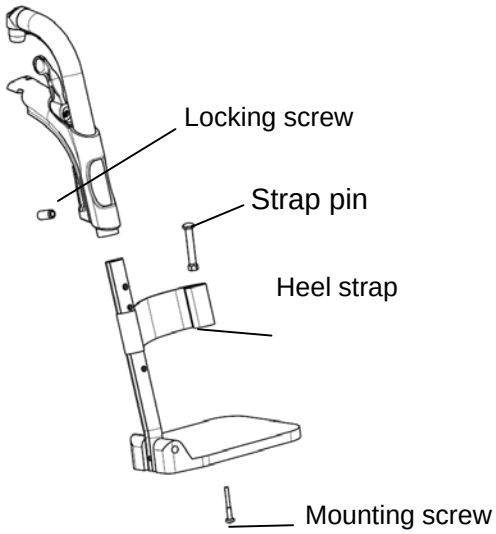


FIGURE 2.2 Replacing Hell Strap

Installing Calf Strap

NOTE: For this procedure, refer to FIGURE 2.3.

1. Secure the optional calf strap around the hanger hook.

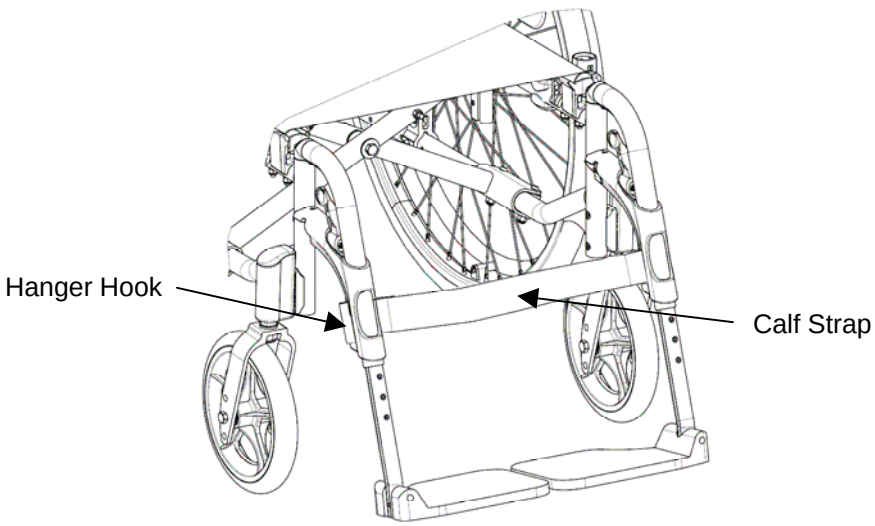


FIGURE 2.3 Installing Calf Strap

Installing Angle Adjustable Footplate

NOTE: For this procedure, refer to FIGURE 2.4.

NOTE: This procedure is for individual Angle Adjustable Footrests only.

1. Position the angle adjustable footplate on the footrest support tube at the desired height.
2. Using the locking screw, loosely secure the angle adjustable footplate to the footrest support tube.

NOTE: Refer to Adjusting Footrest Height paragraph on page 9.

3. Using the mounting screw, adjust to the desired angle (Tooth Plates)by rotating the footplate and depth by sliding the footplate into the tooth plates support.
4. Using the mounting screw, secure the Angle Adjustable Footplate to the footrest tube. Securely tighten.
5. If necessary, repeat STEPS 1-4 to adjust remaining Angle Adjustable Footplate.

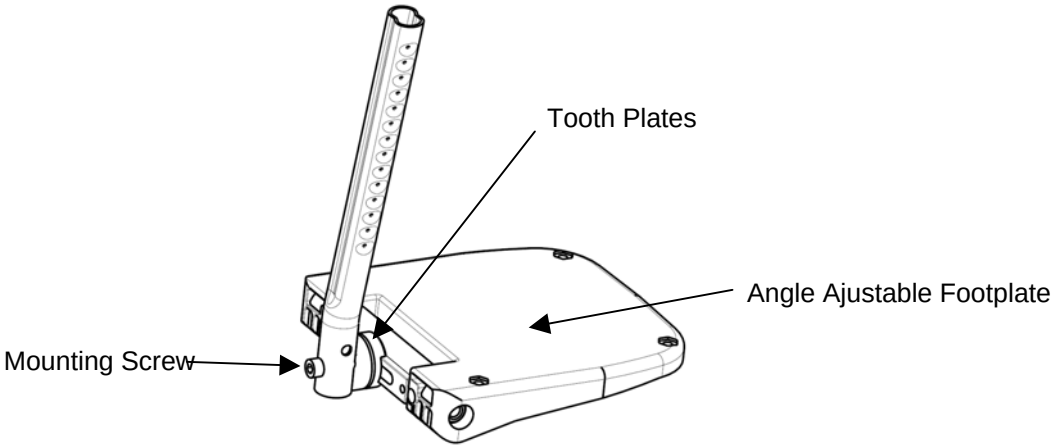


FIGURE 2.4 Installing Angle Adjustable Footplate

Adjusting Elevating Legrest Angle, Height and Calf pad Height/Depth

NOTE: For this procedure, refer to FIGURE 2.5.

Adjusting the Legrest Angle

1. Loosen locking knob securing the rotating axle of the elevating legrest.
2. Adjust to desired angle, securely tighten locking knob.
3. If necessary, repeat STEPS 1-2 to adjust remaining elevating legrest angle.

Adjusting the Footplate Height

1. Loosen locking screw securing the slide tube to the elevating legrest.

2. Reposition footplate to desired height, securely tighten locking screw.
3. If necessary, repeat STEPS 1-2 to adjust remaining footplate height.

Adjusting Calf pad Height

1. Loosen the locking button that secure the calf pad bracket to the elevating legrest assembly.
2. Slide the calf pad bracket up or down until the desired calf pad height is obtained.
3. Tighten the locking button securing the calf pad bracket to the elevating legrest assembly.
4. If necessary, repeat STEPS 1-3 to adjust remaining calf pad bracket.

Adjusting Calf pad Depth

1. Remove the mounting set that secure the calf pad to the calf pad bracket.
2. Insert mounting set through one of four calf pad bracket mounting holes.
3. Using the mounting set secure the calf pad to the calf pad bracket.
4. If necessary, repeat STEPS 1-3 to adjust remaining calf pad assembly.

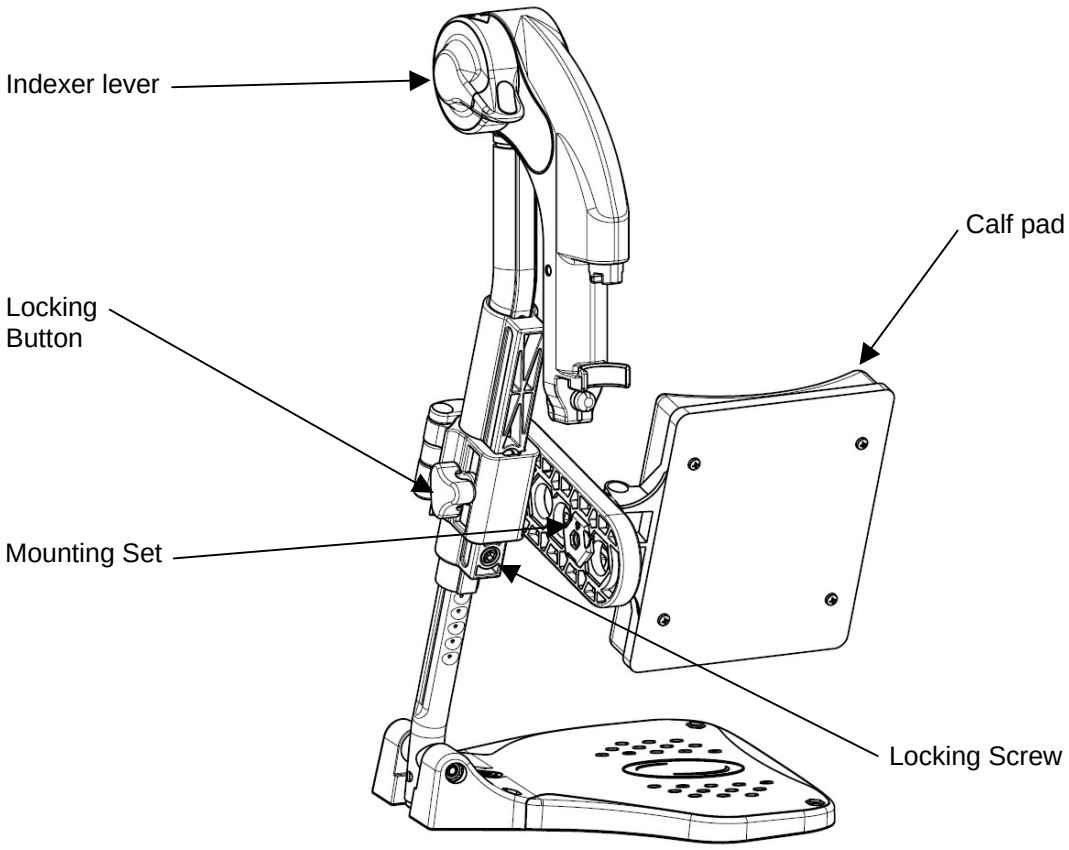


FIGURE 2.5 Adjusting Elevating Legrest Height and Calf pad Height/Depth

SECTION 3—ARMRESTS

⚠ WARNING

After ANY adjustments, repair or service and BEFORE use, make sure all attaching hardware is tightened securely - otherwise injury or damage may occur.

Removing/Installing and Adjusting Removable Armrests (n°1 & n°4)

NOTE: For this procedure, refer to FIGURE 3.1.

Removing/Installing removable armrest (n°1 & n°4)

NOTE: To remove the removable armrest, reverse this procedure.

1. Align the vertical tube with the socket in the T-arm bracket on the wheelchair frame.
2. Slide the vertical tube into the T-arm bracket until the height adjustment screw rests on the top on the T-arm bracket.

Adjusting removable armrest Height

NOTE: For this procedure, refer to FIGURE 3.1.

1. Remove the removable armrest. Refer to Removing/Installing removable armrest paragraph.
2. Remove the height adjustment screw and locknut from the height adjustment hole.
3. Reinstall the height adjustment screw and locknut in one of the three height adjustment holes on the vertical tube of the armrest. Secure tightly.
4. Reinstall the removable armrest. Refer to Removing/Installing removable armrest paragraph.

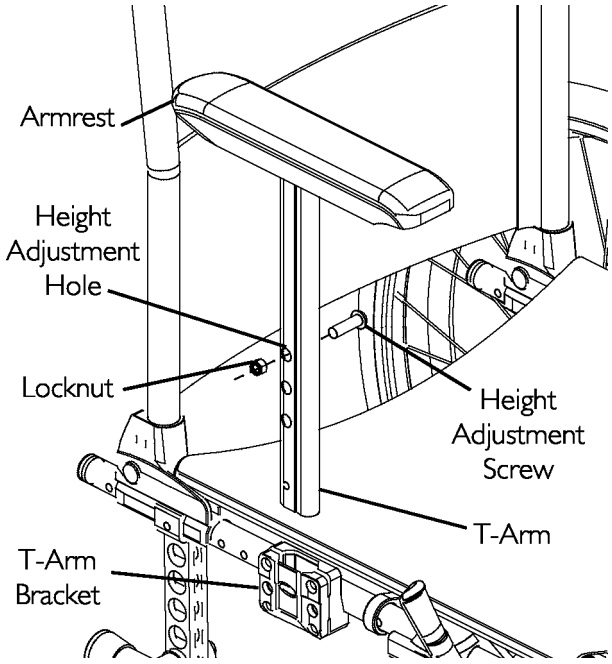


FIGURE 3.1 Removable armrest

Removing/Installing Swing Away Armrests (n° 2 & n° 3)

Removing/Installing Swing Away Armrest (n° 2 & n° 3)

NOTE: For this procedure, refer to FIGURE 3.2.

Removing Swing Away Armrest

1. Unlock existing armrest assembly by operate the push pin.
2. Swing back on the existing armrest to remove from the front arm socket.
3. Pull up on the existing armrest to remove from the rear pivot socket.
4. Repeat STEPS 1-3 for opposite side of wheelchair, if necessary.

Installing Swing Away Armrest

1. If necessary, remove existing armrest assembly as describe above.
2. Install new/existing armrest assembly, first into the rear pivot socket and into the front arm socket.
3. Lock new/existing armrest assembly by operate the push pin.
   Make sure that the dog point is properly engaged in its housing.
4. Repeat STEPS 1-3 for opposite side, if necessary.

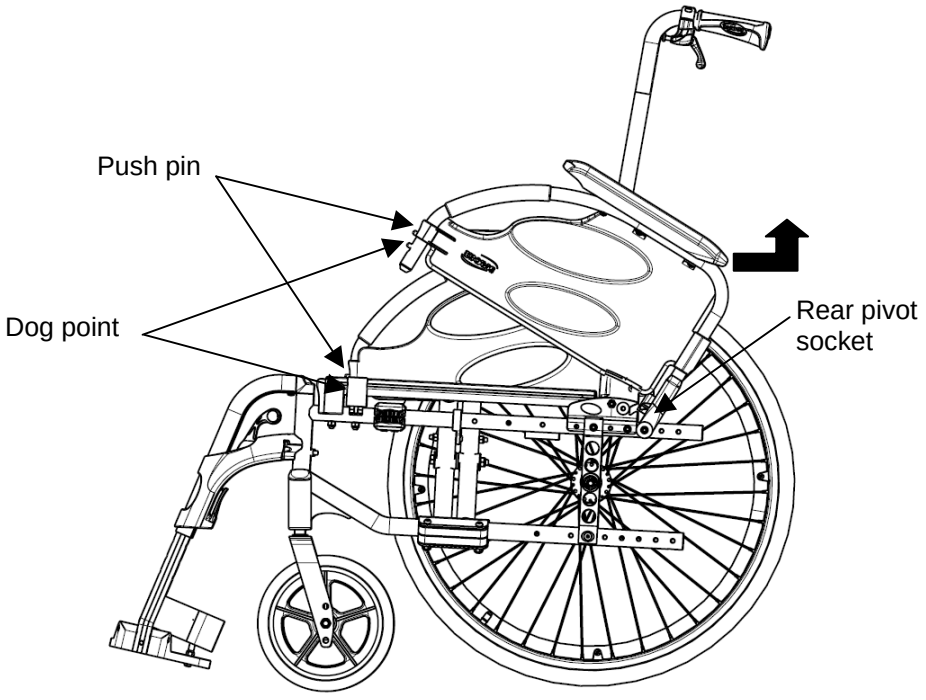


FIGURE 3.2 Removing/Installing Swing Away Armrest

Replacing Armrest Arm pad

NOTE: For this procedure, refer to FIGURE 3.3.

1. Remove the mounting screws that secure the arm pad to the armrest assembly.
2. Replace arm pad and securely tighten with the existing mounting screws.
3. Repeat STEPS 1-2 for the opposite side if necessary.

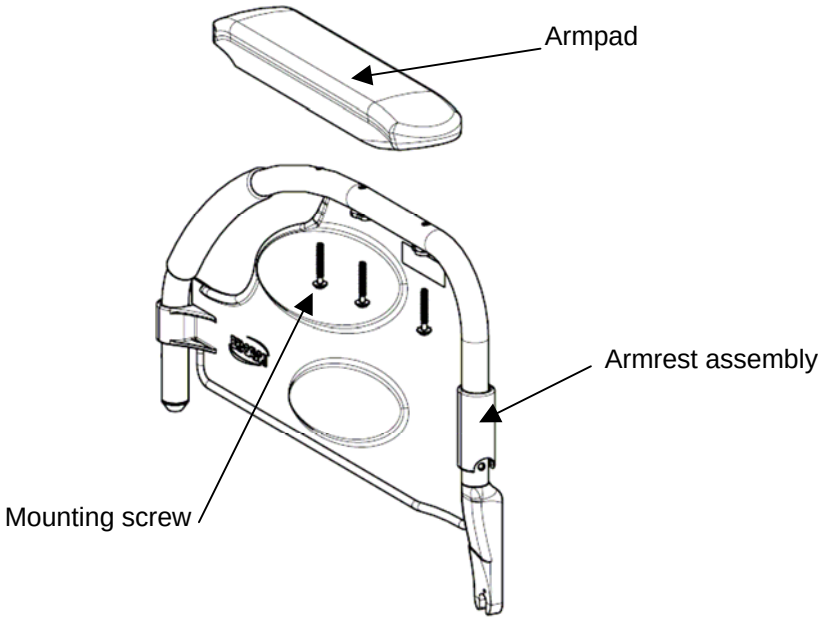


FIGURE 3.3 Replacing Armrest Arm Pad

SECTION 4—SEAT/BACK

⚠ WARNING

The seat height, seat depth, back angle, seating system, size/position of the rear wheels, size/position of the front castors, seating options (e.g. headrest, back bag, …) as well as the user condition directly relate to the stability of the wheelchair. Any change to one or any combination of the nine may cause the wheelchair to decrease in stability. Refer to table on page 8.

After ANY adjustments, repair or service and BEFORE use, make sure all attaching hardware is tightened securely - otherwise injury or damage may occur.

Removing Back Canes

NOTE: For this procedure, refer to FIGURE 4.1.

1. Remove the mounting screw and locknut that secures the back cane to the back cane bracket.
2. Repeat STEP 1 for the other back cane.
3. Remove the back canes out of the back cane brackets.

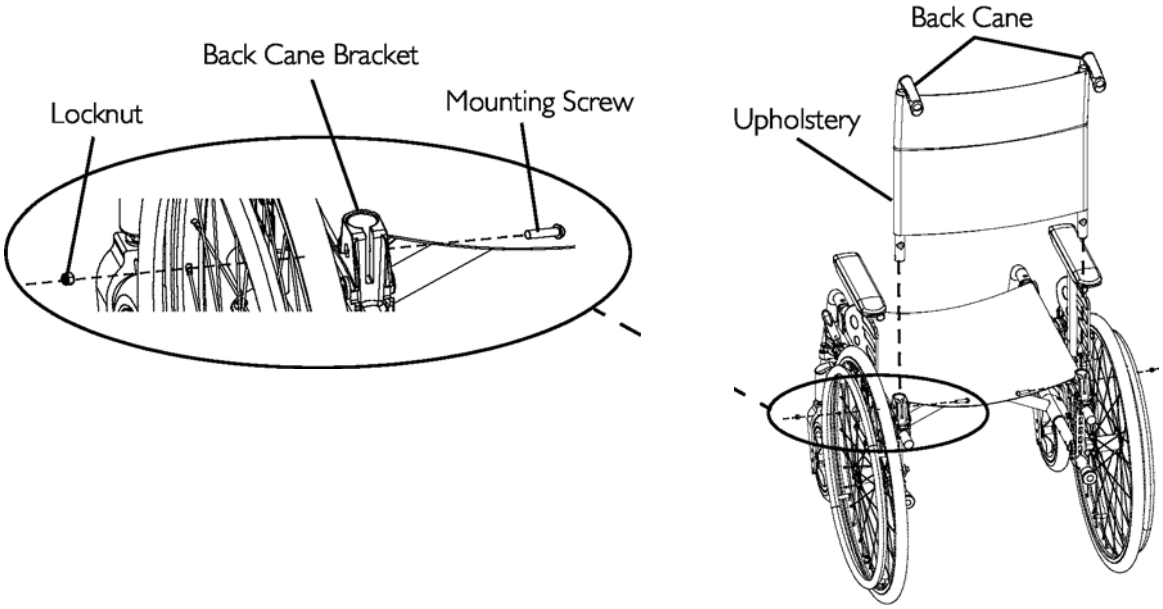


FIGURE 4.1 Removing Back Canes

Removing/Installing Seat Upholstery

NOTE: For this procedure, refer to FIGURE 4.2 on page 12.

Removing Seat Upholstery

NOTE: To install the seat upholstery, reverse this procedure.

1. Fold the wheelchair.
2. Remove the mounting screws that secures the seat upholstery to the front and back seat rails.
3. Remove the end caps from the front of the seat rails.
4. Slide the seat upholstery out of the seat rails.

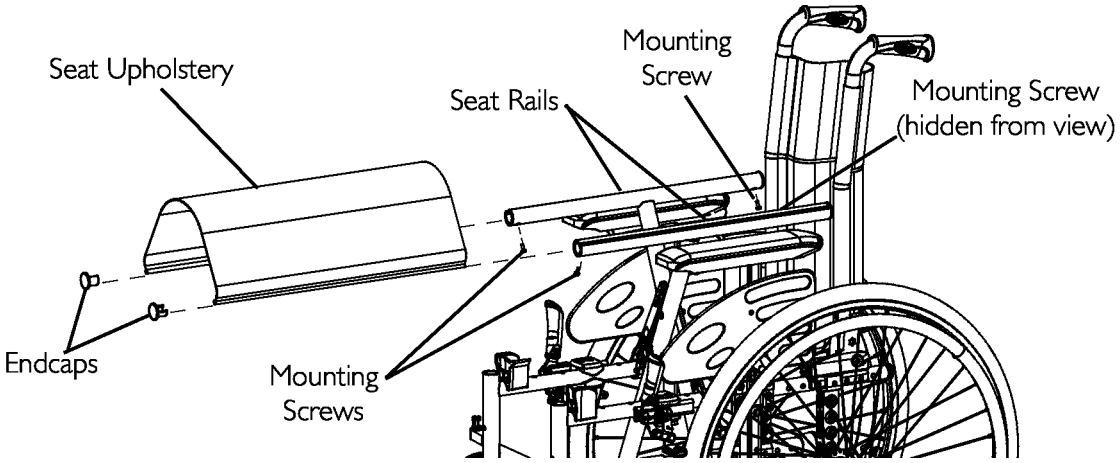


FIGURE 4.2 Removing/Installing Seat Upholstery

Removing/Installing Standard Back Upholstery

NOTE: For this procedure, refer to FIGURE 4.3.

Removing Back Upholstery

NOTE: To Install the Back Upholstery, reverse this procedure.

1. Remove the back canes. Refer to Removing Back Canes paragraph.
2. Remove the mounting screw that secures the back upholstery to the back canes. Refer to Detail "A".
3. Remove the back upholstery from the back canes. Refer to Detail "B".

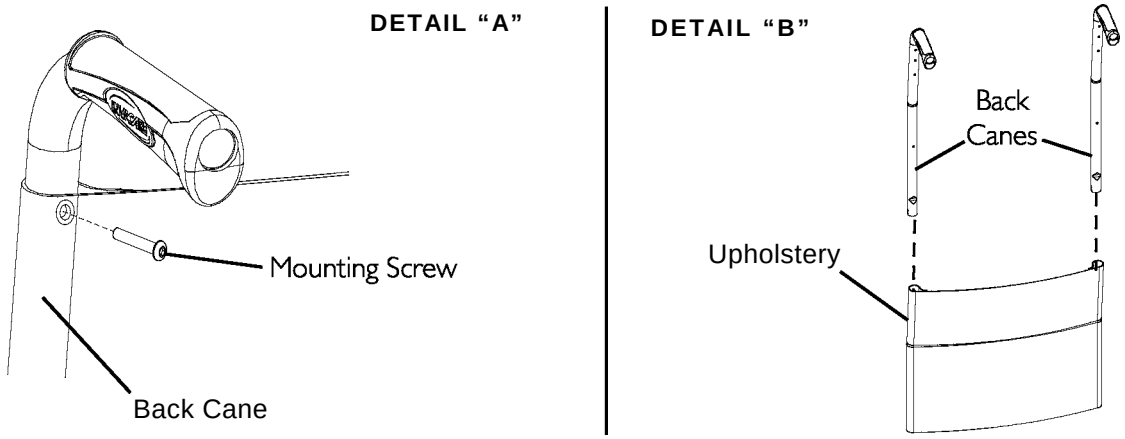


FIGURE 4.3 Removing/Installing Standard Back Upholstery

Contour (adjustable) Back Upholstery

Contour (adjustable) Tension Strips

The adjuster strips can be adjusted at various levels of tension to accommodate individual end users. In a typical scenario, the bottom two strips can be adjusted tightly to support and/or assist the extensor muscles.

Installing/Replacing Adjustable Back Upholstery *NOTE: For this procedure, refer to FIGURE 4.4 on page 14.*

Installing

1. Remove the existing back upholstery from the wheelchair. Refer to Removing/Installing Standard Back Upholstery on page 12.
2. Slide each section (anchor loop/adjuster strap) of the adjustable back upholstery with the grommet hole facing the rear of the wheelchair.
3. Secure the adjustable back upholstery to the back canes with the two mounting screws.

NOTE: Clean the upholstery with warm water and mild detergent to remove superficial soil.

⚠ WARNING

Ensure that the wheelchair is fully opened, the back brace is fitted and the seat rails properly located. The fastening straps MUST be securely fastened before applying the back upholstery cover. The Contour (adjustable) back should be checked whenever entering the wheelchair to ensure that the fastening strips are securely fastened.

4. Slip adjuster straps through corresponding anchor loops and adjust the back upholstery. Secure with the fastening strips.
5. Secure the back upholstery cover (fastening strap) to the back of the adjustable back upholstery (fastening strap).
6. Flip the back upholstery cover over the adjustable back upholstery and secure the fastening strips to the front of the adjustable back upholstery.
7. Lay the front portion of the back upholstery cover on the seat upholstery.
8. Adjust the slack in the back upholstery cover and then secure to the seat upholstery.

Replacing

1. Lift up on the existing back upholstery cover and remove the cover from the wheelchair.
2. Remove the two mounting screws and washers that secure the existing adjustable back upholstery to the back canes.
3. Slide each section (anchor loop/adjuster strap) of the existing adjustable back upholstery off of the back canes.
4. Slide each section (anchor loop/adjuster strap) of the new adjustable back upholstery with the grommet hole facing the rear of the wheelchair.
5. Secure new adjustable back upholstery to the back canes with the two mounting screws and washers.

⚠ WARNING

Ensure that the wheelchair is fully opened, the back brace is fitted and the seat rails properly located. The fastening strips MUST be securely fastened before applying the back upholstery cover. The Contour (adjustable) back should be checked whenever entering the wheelchair to ensure that the fastening strips are securely fastened.

6. Slip adjuster strips through corresponding anchor loops and adjust the back upholstery. Secure with the fastening strips.
7. Secure the new back upholstery cover (fastening strap) to the back of the new adjustable back upholstery (fastening strap).
8. Flip the new back upholstery cover over the new adjustable back upholstery and secure the fastening strips to the front of the new adjustable back upholstery.
9. Lay the front portion of the new back upholstery cover on the seat upholstery.
10. Adjust the slack in the new back upholstery cover and then secure to the seat upholstery.

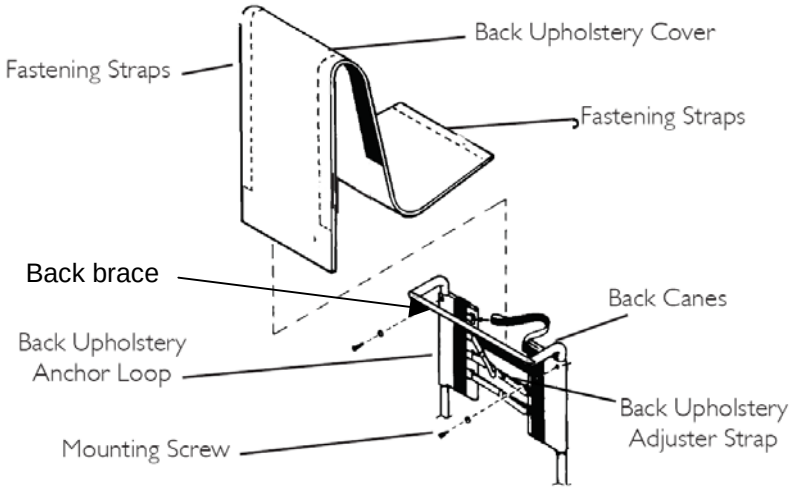


FIGURE 4.4 Installing/Replacing Contour (adjustable) Back Upholstery

Adjusting the Height Adjustable Back

NOTE: For this procedure, refer to FIGURE 4.5.

1. Loosen, but DO NOT remove, the height adjustment knobs.
2. Reposition the back canes to the desired height.

NOTE: Both back canes should be adjusted to the same height.
NOTE: DO NOT raise push handles to maximum height when tilting the chair.

3. Tighten the height adjustment knobs.

NOTE: To prevent accidental removal of a back cane, the spring button lock will engage at the full extension of the back cane. To disengage the button, press the button located below the height adjustment, under the upholstery, on the back cane (Detail "A").

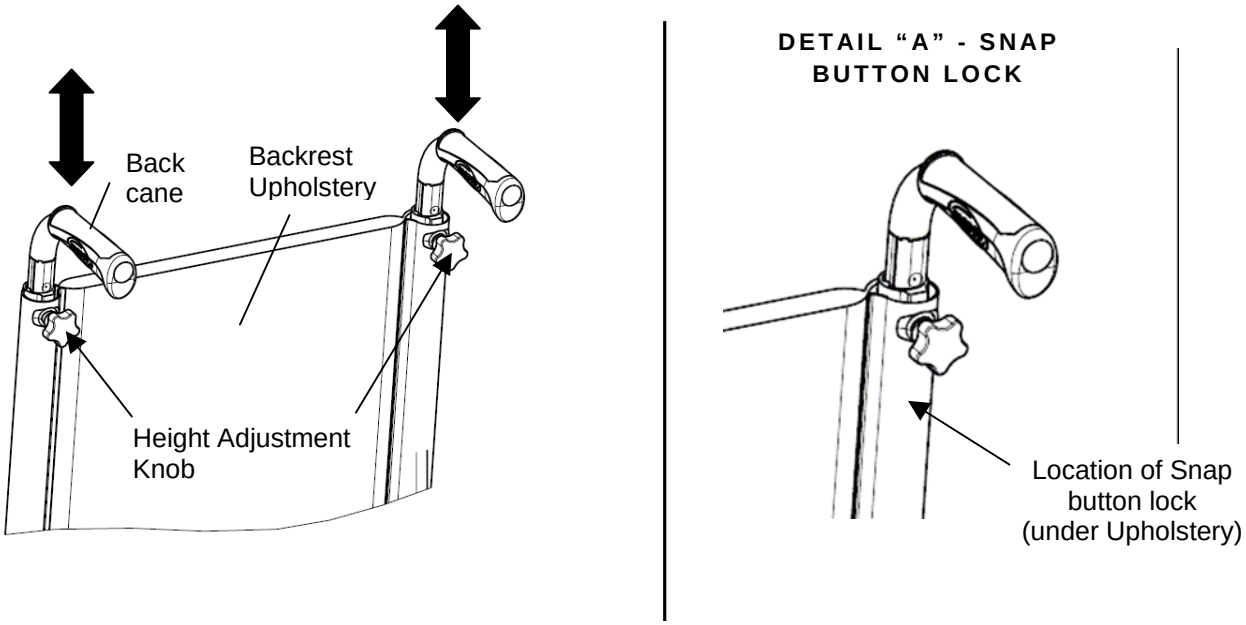

Back cane
Backrest Upholstery
Height Adjustment Knob
DETAIL "A" - SNAP BUTTON LOCK
Location of Snap button lock (under Upholstery)

FIGURE 4.5 Adjusting the Height Adjustable Backrest cane

Adjusting the Back Angle Backrest

NOTE: For this procedure, refer to FIGURE 4.6.

NOTE: This procedure applies to adjustable angle backs only.

NOTE: The back adjusts to four positions in five degree increments from -6° to 24° (by step of 6°).

1. Remove the back angle adjustment screw and locknut.
2. Reposition the back to the desired angle. Refer to Detail "A" of FIGURE 4.6.
3. Ensure the upper back angle mounting hole is aligned with one of the five angle adjustment holes.
4. Install the back angle adjustment screw through the back angle mounting hole and the desired angle adjustment hole.
5. Secure the angle adjustment screw with a locknut.

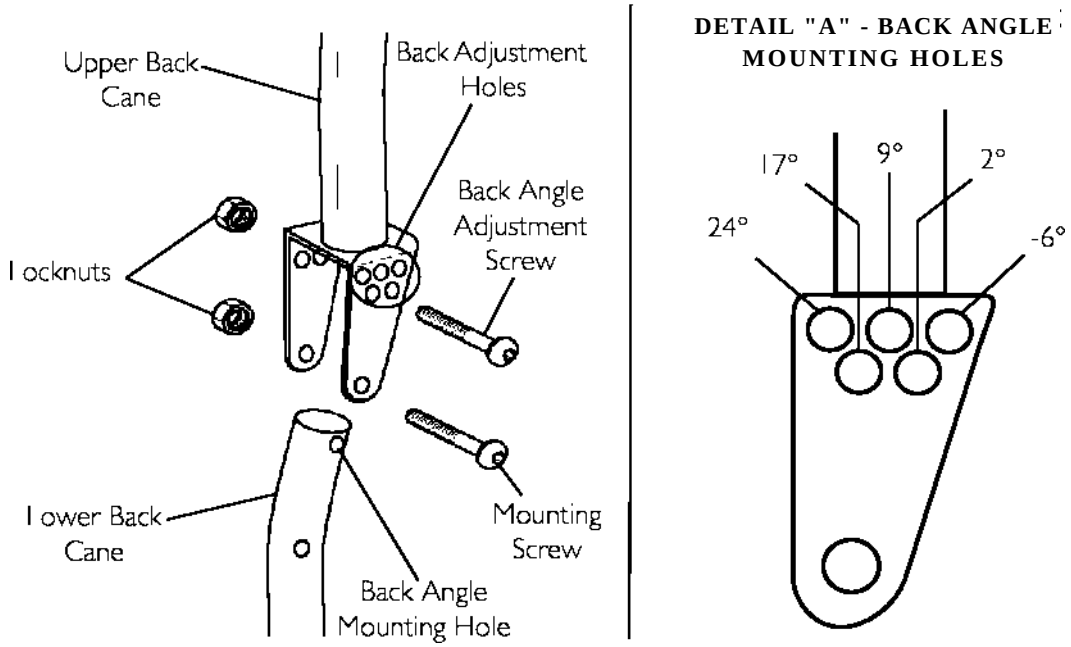


FIGURE 4.6 Adjusting the Back Angle

Removing/Installing different type of Backrests

NOTE: For this procedure, refer to FIGURE 4.7 (next page).

Folding backrest

NOTE: To Install the Fixed/Folding backrest, reverse this procedure from STEP 3 to 1.

1. Remove the back cane bracket. Refer to Removing Back Cane Bracket paragraph.
2. Pull up on the seat upholstery.
3. Remove the two mounting screws and locknuts that secure the back cane bracket to the wheelchair frame.
4. Install the new set including the appropriate backrest upholstery

   NOTE: Both back canes should be set to the same adjustment hole.

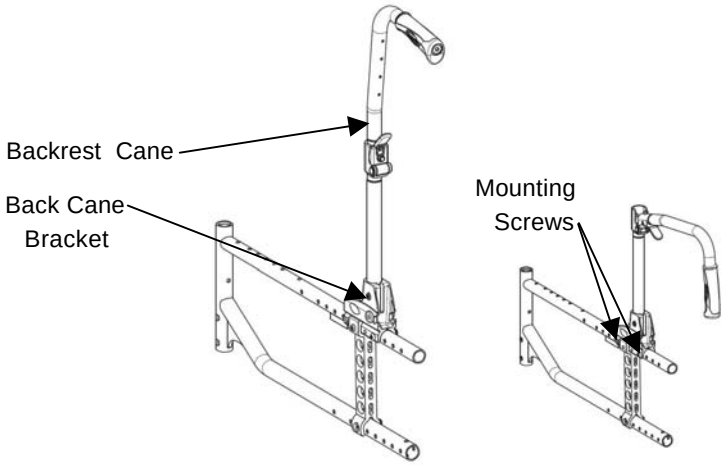


FIGURE 4.7 Fixed/Folding Backrest

Removing/Installing different type of Backrests

Recliner backrest (Mechanical and Gas strut versions)

NOTE: For this procedure, refer to FIGURE 4.8.

To Install the Recliner backrest, reverse this procedure from STEP 1 to 3.

1. Remove the back cane bracket. Refer to Removing Back Cane Bracket paragraph.
2. Pull up on the seat upholstery.
3. Remove the two mounting screws and locknuts that secure the back cane bracket to the wheelchair frame.
4. Install the new set including the appropriate backrest upholstery
   NOTE: Both back canes should be set to the same adjustment hole.

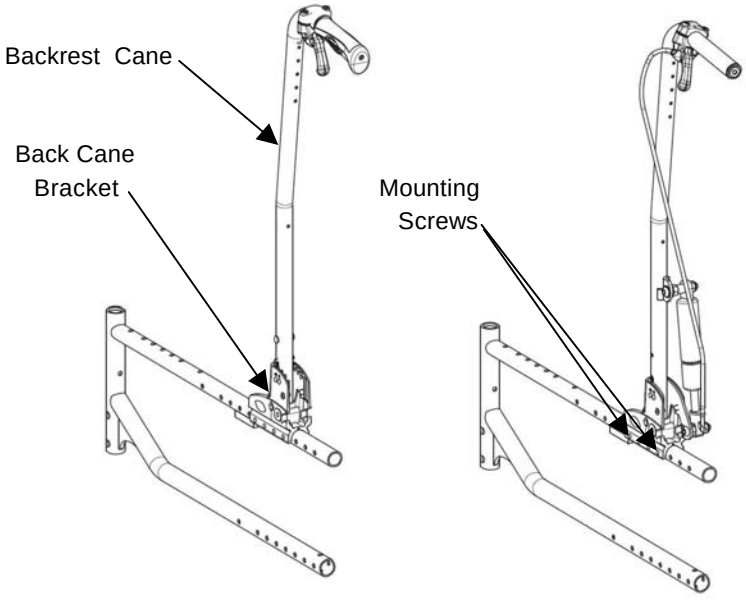


FIGURE 4.8 Recliner Backrests

Removing/Installing different type of Backrests

Comfort backrest (Mechanical and Gas strut versions)

NOTE: For this procedure, refer to FIGURE 4.9.

To Install the Comfort backrest, reverse this procedure from STEP 1 to 3.

1. Remove the back cane bracket. Refer to Removing Back Cane Bracket paragraph.
2. Pull up on the seat upholstery.
3. Remove the two mounting screws and locknuts that secure the back cane bracket to the wheelchair frame.
4. Install the new set including the appropriate backrest upholstery and shell

   (refer to user guide to lock and unlock the complete backrest upholstery)

   NOTE: Both back canes should be set to the same adjustment hole.

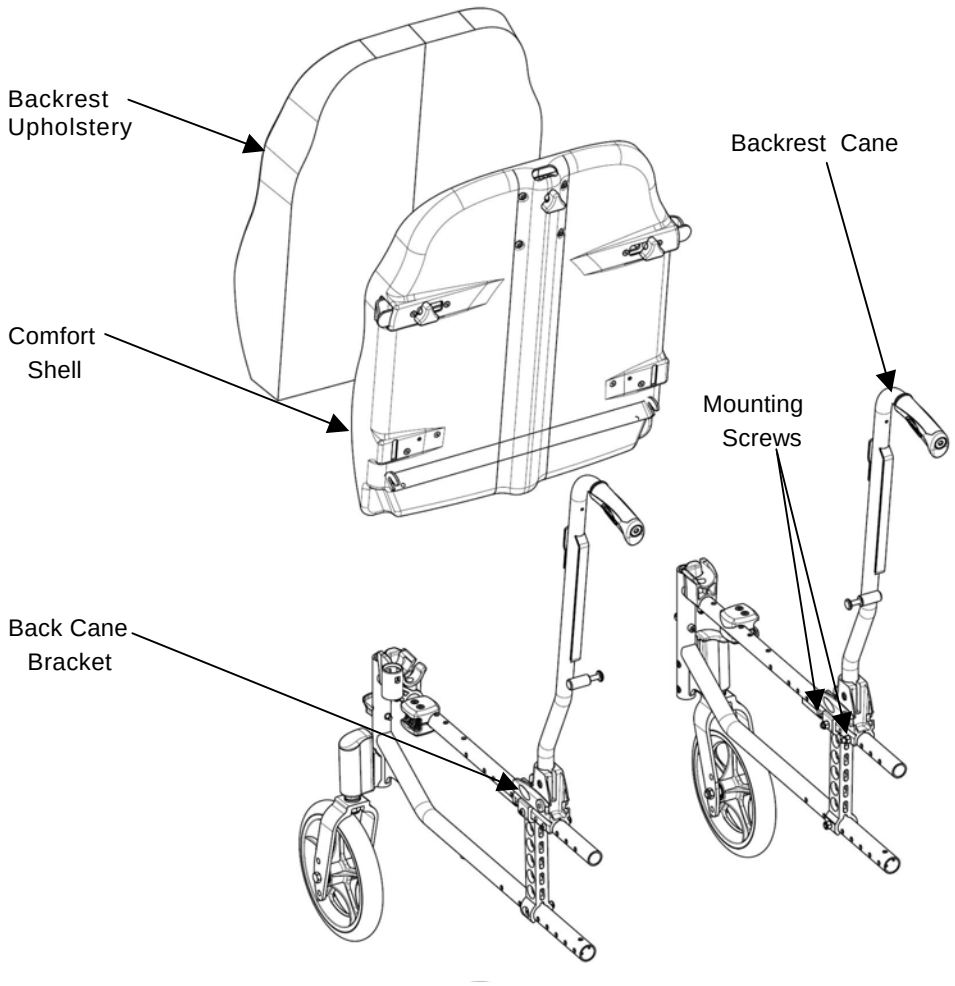


FIGURE 4.9 Comfort Backrests

Removing/Installing/Adjusting the Back Cane Bracket

NOTE: For this procedure, refer to FIGURE 4.10.

NOTE: To install the back cane bracket, reverse this procedure.

4. Remove the back canes. Refer to Removing Back Canes paragraph.
5. Pull up on the seat upholstery.
6. Remove the two mounting screws and locknuts that secure the back cane bracket to the wheelchair frame.
7. Do one of the following:

   - **To Remove:** the back cane bracket by sliding it off the back of the wheelchair frame.
   - **To Adjust:** slide the back cane bracket to one of the four adjustment holes on the bracket.

   NOTE: Both back canes should be set to the same adjustment hole.

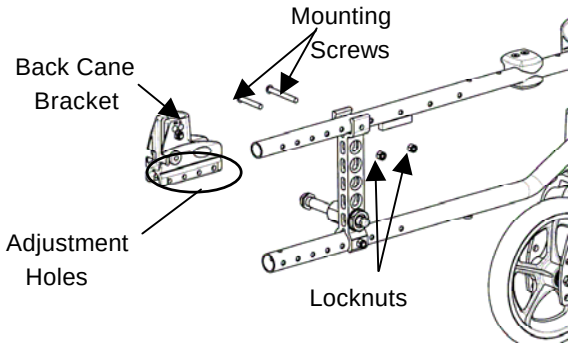


FIGURE 4.10 Removing/Installing/Adjusting the Back Cane Bracket

Installing/Removing Seat Lap Belt

NOTE: For this procedure, refer to FIGURE 4.11.

1. Remove seat cushion from wheelchair, if necessary.
2. Remove the mounting screw and locknut that secures the seat lap belt half to the back cane bracket.
3. Repeat STEP 2 for opposite side, if necessary.
4. Do one of the following:
   - To install the seat lap belt, proceed to STEP 6.
   - Remove the existing seat lap belt from the wheelchair.
5. Engage the two halves of the new seat lap belt.
6. Align the mounting holes on the back cane bracket and one end of the new seat lap belt.
7. Secure the new seat lap belt to the wheelchair frame with one mounting screw and washer. Tighten securely.
8. Repeat STEPS 6 and 7 for the opposite side of the seat lap belt.
9. Reinstall seat cushion onto wheelchair, if necessary.

NOTE: Seat upholstery removed for clarity.

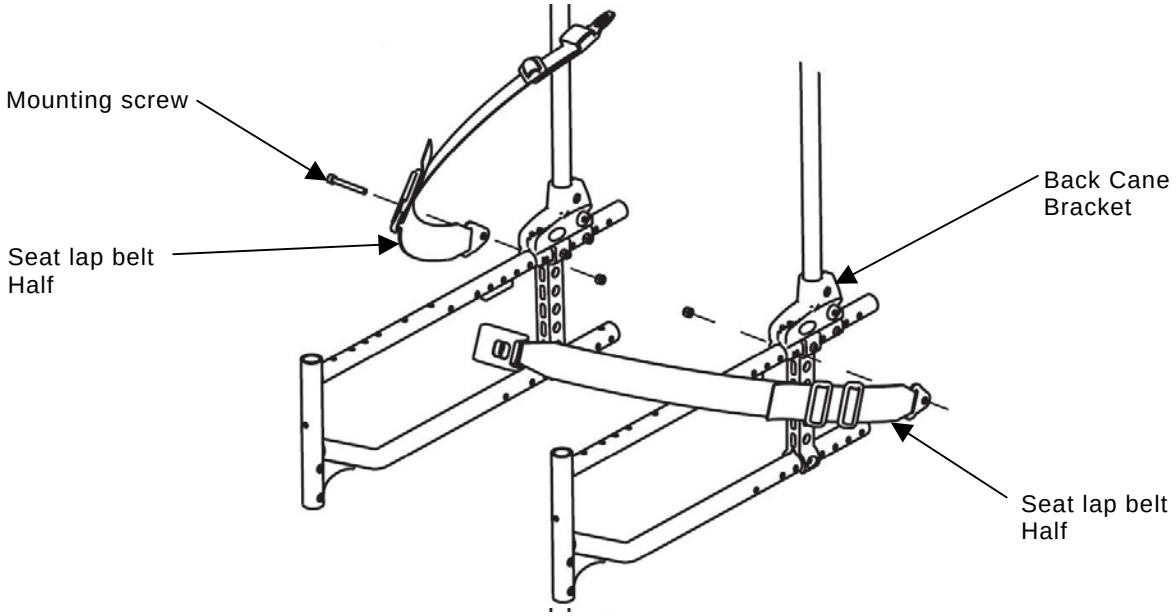


FIGURE 4.11 Installing/Removing Seat Lap Belt

Installing/Removing the Back Brace

⚠ WARNING

If a back brace is already installed, you don't have to re-install the back cane inserts (for fixed backrest canes only).
After ANY adjustments, repair or service and before use, make sure all attaching hardware is tightened securely - otherwise injury or damage may occur.

NOTE: For this procedure, refer to FIGURE 4.12.

NOTE: To remove the back brace, reverse this procedure.

1. Remove the end caps from the back canes.
2. Remove the handles from the back canes.
3. Install the inserts into the canes (fixed backrest canes only).
4. Secure the inserts with mounting screws (fixed backrest canes only).
5. Install the handles on the back canes.
6. Align the back brace ends with the handles of the back canes.
7. Secure the back brace to the back canes with the mounting bolts.

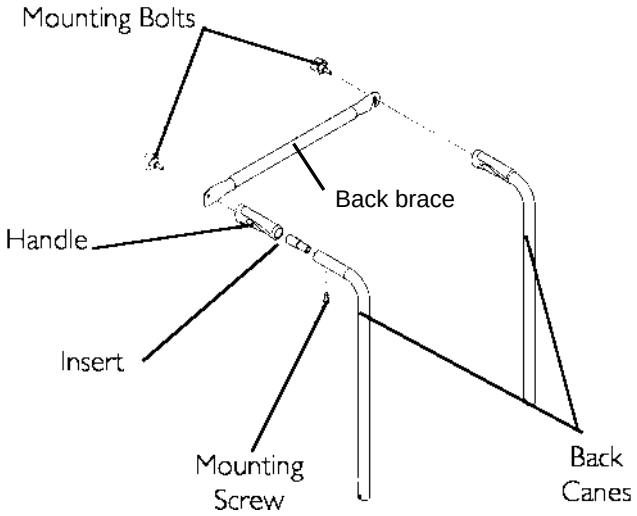


FIGURE 4.12 Installing/Removing the Back Brace

SECTION 5—REAR WHEELS/FRONT CASTORS

⚠ WARNING

The seat height, seat depth, back angle, seating system, size/position of the rear wheels, size/position of the front casters, seating options (e.g. headrest, back bag, ...) as well as the user condition directly relate to the stability of the wheelchair. Any change to one or any combination of the nine may cause the wheelchair to decrease in stability. These adjustments MUST be performed by a qualified technician.

After ANY adjustments, repair or service and before use, make sure all attaching hardware is tightened securely - otherwise injury or damage may occur.

Removing/Installing Rear Wheels

⚠ WARNING

If changing the size of the rear wheel or the seat-to-floor height, this procedure must be performed by a qualified technician.

Fixed Axles, Transit version

NOTE: For this procedure, refer to FIGURE 5.1. (see next page)

Removing rear wheels

1. 12”; remove the fixed axle, washers, dust cap and locknut that secure rear wheel to the axle brackets. Remove existing rear wheel from the wheelchair.
2. Install new/existing rear wheel onto wheelchair. Refer to Installing Transit Kit Paragraph, see STEPS 3-6 only.
3. 24” or 22”; remove the complete wheel and the axle bracket from the axle plate. Refer to Removing/Installing Rear Wheels paragraph.

Installing Transit Kit

1. Always make sure that the axle plate is in the passive position on both sides, refer to Adjusting the Wheel Base Length paragraph.
2. Install the axle bracket and anti-tippers bracket with the Axle brackets Hardware
3. Install fixed axle through washer, new/existing rear wheel and axle bracket.
4. Securely tighten with the existing fixed axle locknut. Torque to 25 Nm.
5. Fixed and adjust the transit brake with its brake hardware, adjust the distance between the brake shoe and the wheel, see Adjusting Wheel Brake paragraph.
6. If necessary, repeat STEPS 1-5 for opposite rear wheel.

NOTE: Both Axle brackets should be set at the same position. Head of bottom mounting screws needs to be on the outside position.

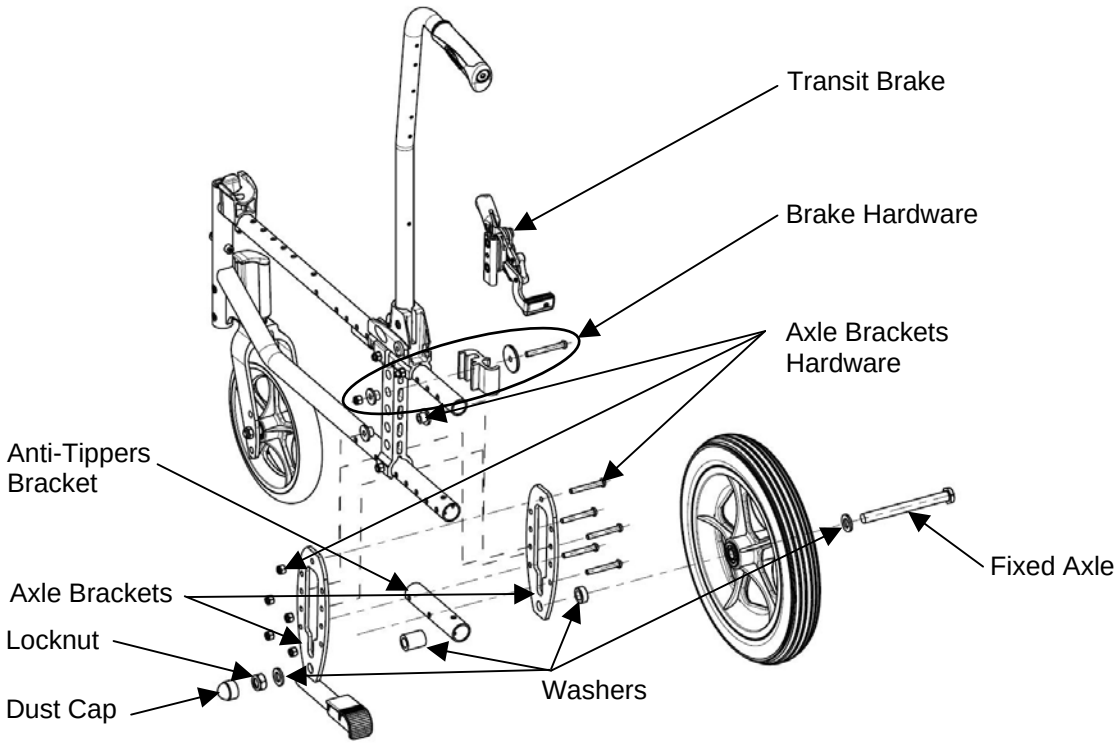


FIGURE 5.1 Removing/Installing Rear Wheels

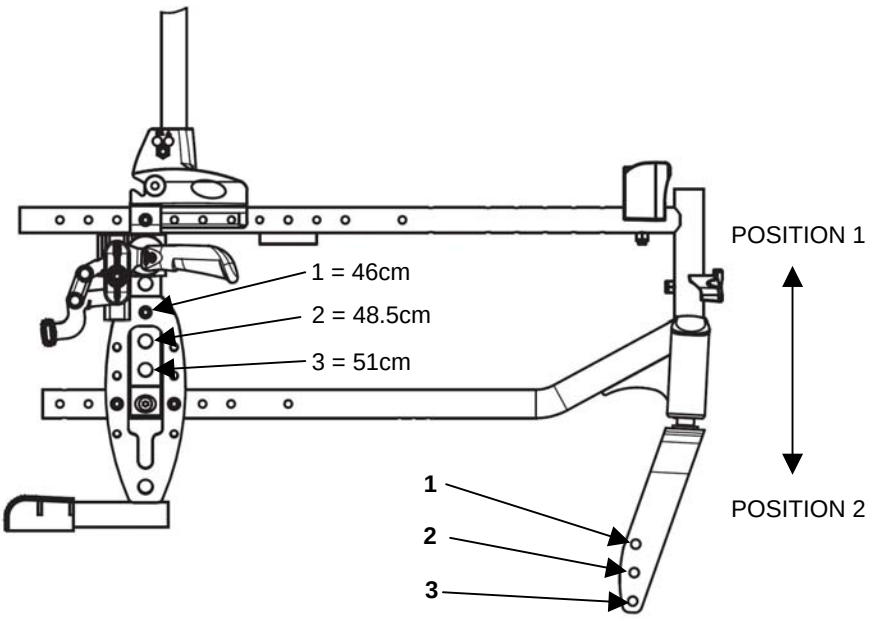
NOTE: In order to obtain the desired front seat to floor height (for details, see Seat-to Floor Height paragraph), it will be necessary to perform one or both of the following :

- Changing the mounting position on the fork. Refer to Removing/Installing/Repositioning the Castor Assemblies paragraph.
- Changing the fork size or adding/removing height adjustment spacers. Refer to Adjusting Forks paragraph.
- Changing the rear height positioning and /or the seat angle. Refer to the table below.

Seat Angle 0°	Rear Support	Headset Support	
Seat Height	Transit	Position 1	Position 2
	12"	8"	8"
38,5	X		
41	X		
43,5	X		
46	2	2	1
48,5	3	3	2
51	X		

Seat Angle 3°	Rear Support	Headset Support	
Seat Height	Transit	Position 1	Position 2
	12"	8"	8"
38,5	X		
41	X		
43,5	X		
46	1	2	1
48,5	2	3	2
51	3	X	3

Seat Angle 6°	Rear Support	Headset Support	
Seat Height	Transit	Position 1	Position 2
	12"	8"	8"
38,5	X		
41	X		
43,5	X		
46	X	2	1
48,5	2	3	2
51	3	X	3



Quick-Release Axles

NOTE: For this procedure, refer to FIGURE 5.2.

Removing

1. Hold the centre of the rear wheel and push in the tip of the quick release axle.
2. Pull the quick release axle and rear wheel out of the axle bracket on the wheelchair frame.
3. Push in the tip of the quick release axle again and pull the quick release axle out of the existing rear wheel.
4. Install new/existing rear wheel onto wheelchair. Refer to Removing/Installing Rear Wheels paragraph.

⚠ WARNING

Make sure the detent pin and locking pins of the quick-release axle are fully released before operating the wheelchair.

The locking pins MUST be protruding past the inside of rear wheel hub for a positive lock.

Keep locking pins clean.

Invacare recommends inserting quick-release axles with the head end to the inside of the wheelchair to prevent accidental release during contact leisure activities.

Installing

1. Install the existing quick release axle through the new/existing rear wheel.
2. Install the new/existing rear wheel and quick release axle into the axle bracket on the wheelchair frame.
3. Refer to Adjusting Quick Release Axles paragraph if the locking pins are not protruding past the inside of the axle bushing or there is too much movement of the rear wheel assembly in a back and forth position.

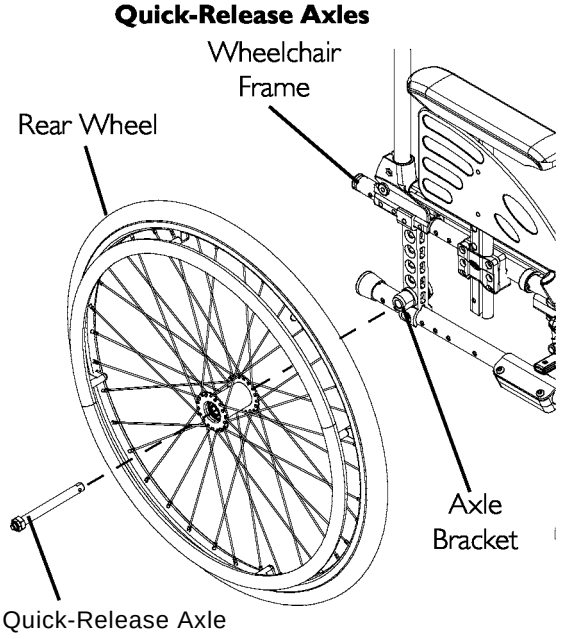


FIGURE 5.2 Removing/Installing Rear Wheels

Adjusting Quick-Release Axles

NOTE: For this procedure, refer to FIGURE 5.3.

1. Remove rear wheel and quick release axle from the wheelchair. Refer to Removing/Installing Rear Wheels paragraph.
2. Depress detent pin in the quick release axle and slide the quick release axle through the rear wheel hub.
3. Release detent pin to ensure that the locking pins are fully released.
4. Increase or decrease end play by adjusting the locknut on the end of the quick release axle.

⚠ WARNING

Make sure the detent pin of the quick release axle is fully released BEFORE operating the wheelchair.

Keep locking pins clean.

5. Reinstall rear wheel onto the wheelchair. Refer to Removing/Installing Rear Wheels paragraph.
6. Repeat STEPS 4-5 until the quick release axle detent pins are fully released past the wheelchair frame.

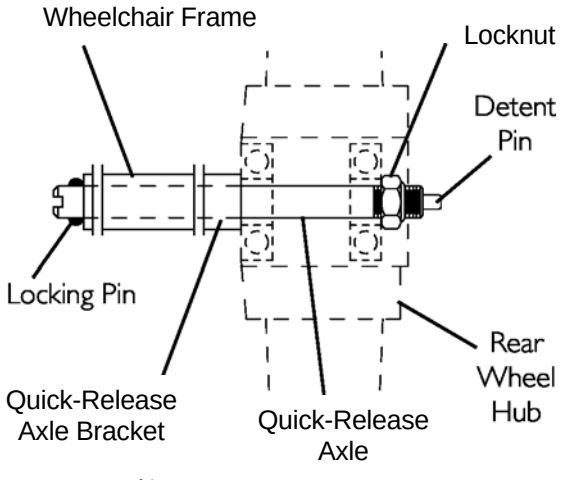


FIGURE 5.3 Adjusting Quick-Release Axles

Replacing Handrims

NOTE: for this procedure, refer to FIGURE 5.4.

1. Remove the rear wheel from the wheelchair. Refer to Removing/Installing Rear Wheels paragraph.
2. Remove the mounting screws that secure the existing handrim to the rear wheel.
3. Remove the existing handrim.
4. Install the new handrim and secure to the rear wheel with the existing mounting screws.
5. Reinstall the rear wheel to the wheelchair. Refer to Removing/Installing Rear Wheels paragraph.
6. Repeat STEPS 1~5 for opposite wheel, if necessary.

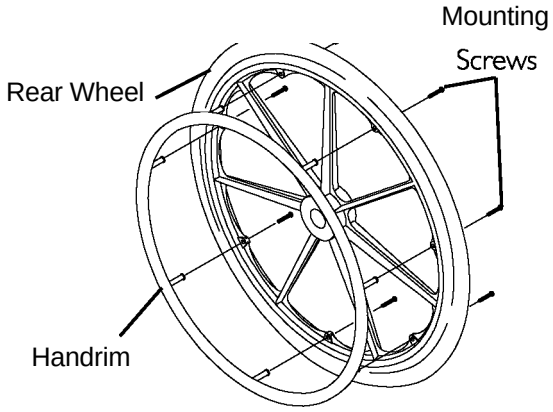


FIGURE 5.4 Replacing Handrims

Adjusting the Wheelbase Length

NOTE: For this procedure, refer to FIGURES 5.5 & 5.6.

1. Remove the wheel. Refer to Removing/Installing Rear Wheels paragraph.
2. Remove the two mounting screws that secure the top and bottom of the axle plate to the wheelchair frame.

CAUTION

The top of the axle plate must remain on the plastic seat bracket. Otherwise, scratching and slight frame damage may occur.

3. Align the axle plate with one of four adjustment holes. There are 4 positions possible:

- Factory setting for Fixed backrest is Standard position “A”, for Recliner backrest is Passive position “B”. Refer to detail “A” of FIGURE 5.6.
- Active position is “C” and Medium position is “D”.

⚠ WARNING

The two mounting screws need to be two adjustment holes apart to maintain frame integrity.

Respect factory settings related to backrest type (“A” for Fixed, “B” for Recliner), refer to detail “A” of FIGURE 5.6.and to seat depths (40 cm or 45 cm).

Active position “C” and Medium position “D” of the axle plates directly relate to the stability of the wheelchair. Any change to one or any combination of the 4 positions may cause the wheelchair to increase/decrease in stability.

Anti-tippers can be fitted to secure the stability if required. Refer to SECTION 8.

NOTE: When using the last adjustment position, the existing mounting screw needs to be switched to the front of the back cane bracket.

4. Repeat STEPS 1 to 3 for the other axle plate.

NOTE: Both axle plates should be set at the same position. Head of bottom mounting screws needs to be on the outside position.

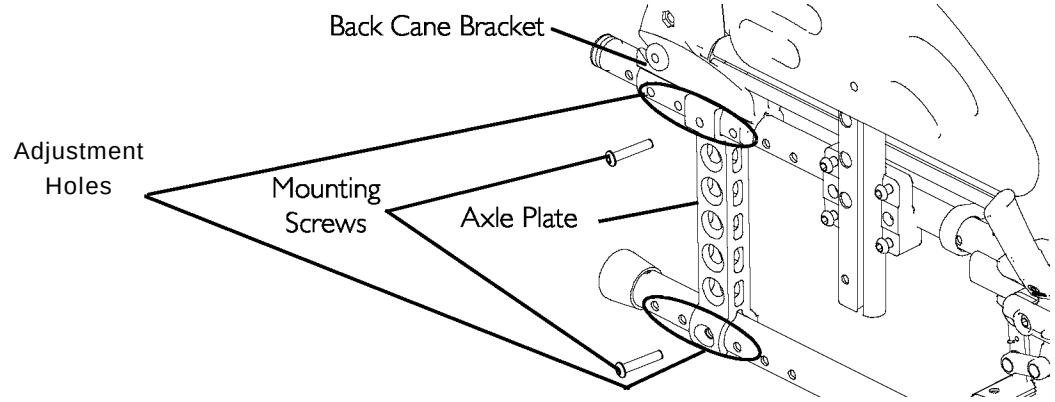


FIGURE 5.5 Adjusting the Wheelbase Length

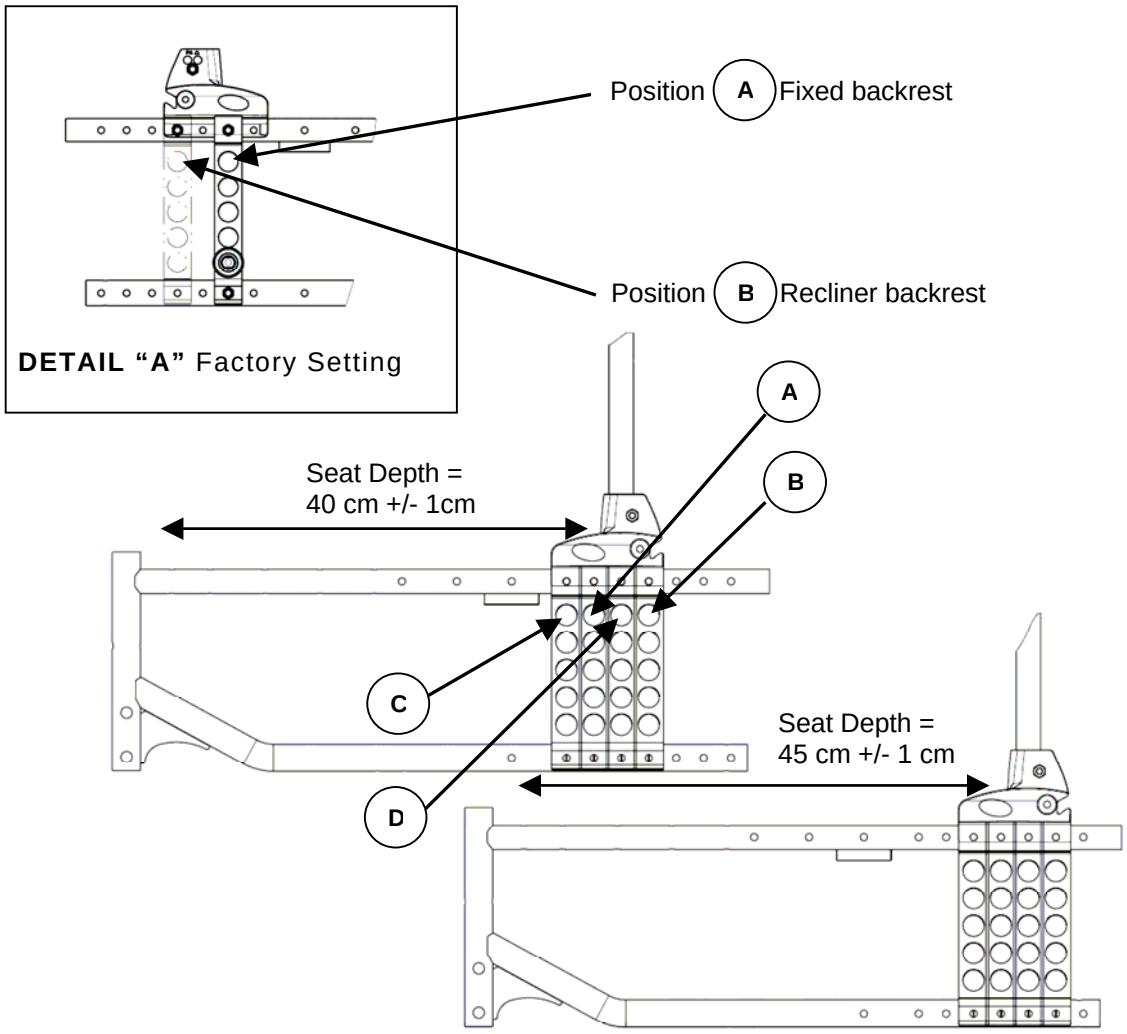


FIGURE 5.6 4 Possible Positions of Wheel Plate

Adjusting Rear Wheel Height

NOTE: For this procedure, refer to FIGURE 5.7.

1. Remove the rear wheel. Refer to Removing/Installing Rear Wheels paragraph.
2. Remove the locknut and washer that secures the axle bracket to the axle plate
3. Align the axle bracket with one of the five adjustment holes on the axle plate.
4. Secure the axle bracket to the axle plate, at the desired height, with the locknut and washer.
5. Install the rear wheel. Refer to Removing/Installing Rear Wheels paragraph.
6. Repeat STEPS 1 to 5 for the other rear wheel.

NOTE: Both rear wheels should be set at the same position.

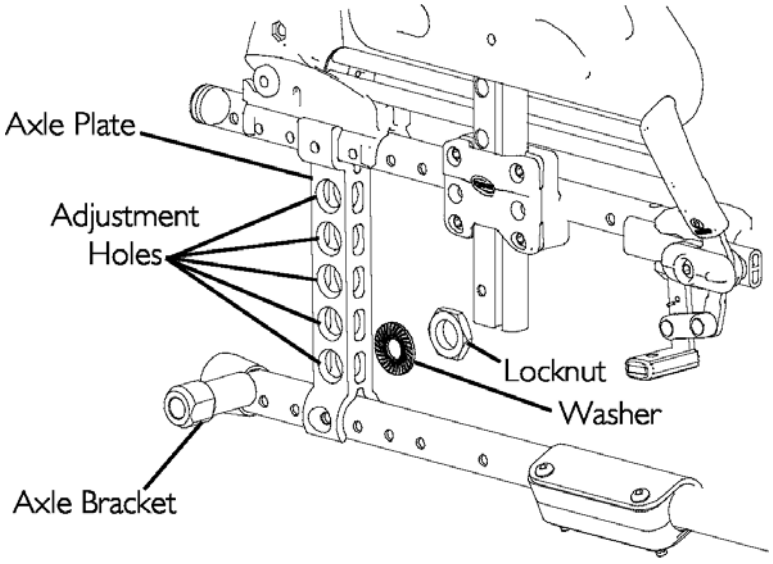


FIGURE 5.7 Adjusting Rear Wheel Height

Replacing/Repairing Rear Wheel Tyre/Tube

⚠ WARNING

Replacement of rear wheel tyre or tube MUST be performed by a qualified technician.

Replacing/Repairing Front Castor Tyre/Tube

⚠ WARNING

Replacement of front castor tyre or tube MUST be performed by a qualified technician.

CAUTION

As with any vehicle, the wheels and tires should be checked periodically for cracks and wear, and should be replaced when necessary.

Adjusting Forks

⚠ WARNING

Castor angle vertical axis MUST be at 90° +/- 1° from the ground, if not a flattering risk may occur. Both castor assemblies should be at the same angle.

After ANY adjustments, before use, make sure all attaching hardware is tightened securely - otherwise injury or damage may occur.

NOTE: For this procedure, refer to FIGURE 5.8.

1. Remove the dust cover from the castor head tube.
2. To properly tighten castor journal system and guard against flutter, perform the following check:
   A. Tip back the wheelchair to floor.
   B. Pivot castor fork assemblies in rear position
   C. Push castor to initiate clockwise movement
   D. Let castor fork assembly rotate freely
   E. Unacceptable rotation (see schema A) is if castor Fork assembly's movement is to Position1 then to Position 3 and back to Position 2.
   Castor fork assembly too loose.
   F. Unacceptable rotation (see picture A) is if castor Fork assembly's movement is only to Position 4.
   Castor fork assembly too tight.
   G. Adjust locknuts until you achieve acceptable movement. Do not over tight the locknut, you may Risk to damage the bearings, better to tight and test progressively
3. Repeat STEPS C-G until the wheels swing once to one side, then immediately rest in a straight downward position.
4. Test wheelchair for manoeuvrability.
5. Snap dust cover into the castor head tube.

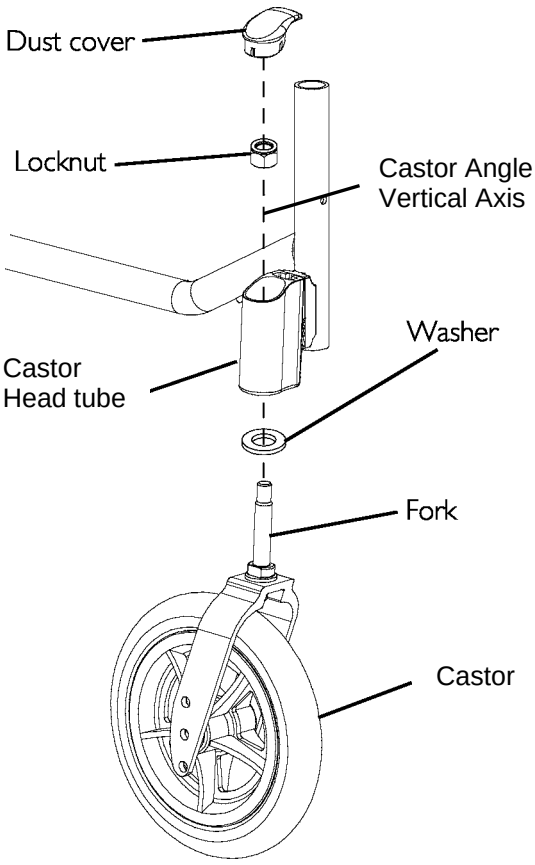
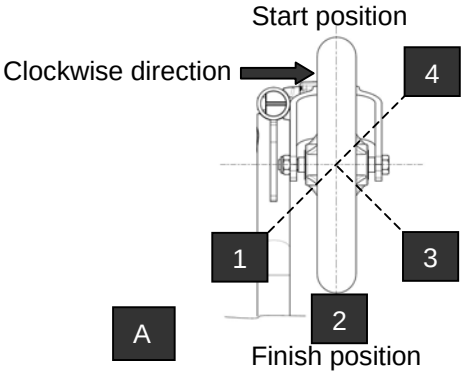


FIGURE 5.8 Adjusting Fork



Removing/Installing/Repositioning the Castor Assemblies

NOTE: If replacing a front castor note the mounting position of the existing front castor for installation of the new front castor.

NOTE: If repositioning front castors or replacing the existing front castor with a castor of a different size, refer to Changing Front Seat-to-Floor Height paragraph to determine the front castor position needed for the required front seat-to-floor height.

NOTE: Both front castors MUST be the same size and adjusted to the same height. NOTE: For this procedure, refer to FIGURE 5.9.

Removing Front Wheel

1. Remove the mounting bolt, axle spacers and locknut that secure the front wheel to the fork.
2. Remove the wheel from the fork.

Installing Front Wheel

1. Using the mounting bolt, axle spacers and locknut, secure the wheel to the desired wheel mounting position.
2. Ensure fork stem is perpendicular to the flat surface. Refer to Adjusting Castor Angle paragraph.

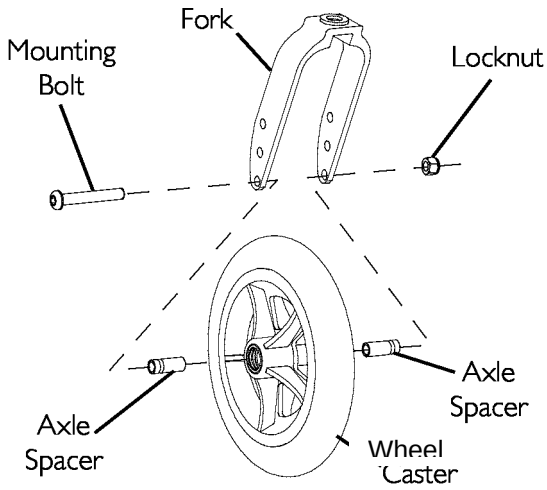


FIGURE 5.98 Removing/Installing/ Repositioning the front wheel

Adjusting Castor Angle

NOTE: For this procedure, refer to FIGURE 5.10.

1. Loosen the two mounting screws that secure the castor assembly to the wheelchair frame.

NOTE: It is not necessary to remove the mounting screws.

2. Rotate the castor assembly to the desired angle.

NOTE: Both castors should be set at the same angle.

3. Tighten the mounting screws that secure the castor assembly to the wheelchair frame.

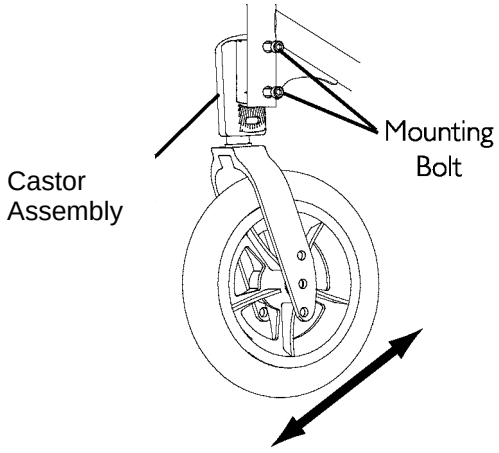


FIGURE 5.10 Adjusting Castor Angle

Adjusting Castor Assembly Position

NOTE: For this procedure, refer to FIGURE 5.11.

1. Remove the two mounting screws that secure the castor assembly to wheelchair frame.
2. Move the castor assembly to one of two positions. Refer to Detail “A” of FIGURE 5.11.
3. Secure the castor assembly to the wheelchair frame.
4. Repeat STEPS 1 to 3 for the other castor assembly.

NOTE: Both castor assemblies should be set at the same angle.

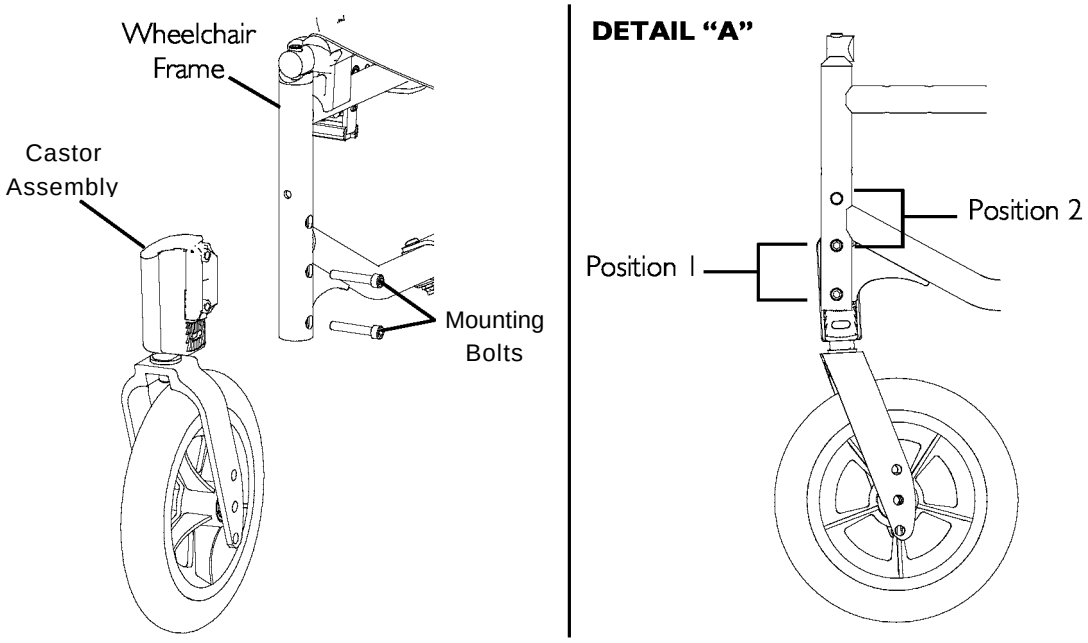


FIGURE 5.11 Adjusting Castor Assembly Position

SECTION 6—SEAT-TO-FLOOR HEIGHT

⚠ WARNING

After ANY adjustments, repair or service and before use, make sure all attaching hardware is tightened securely - otherwise injury or damage may occur.

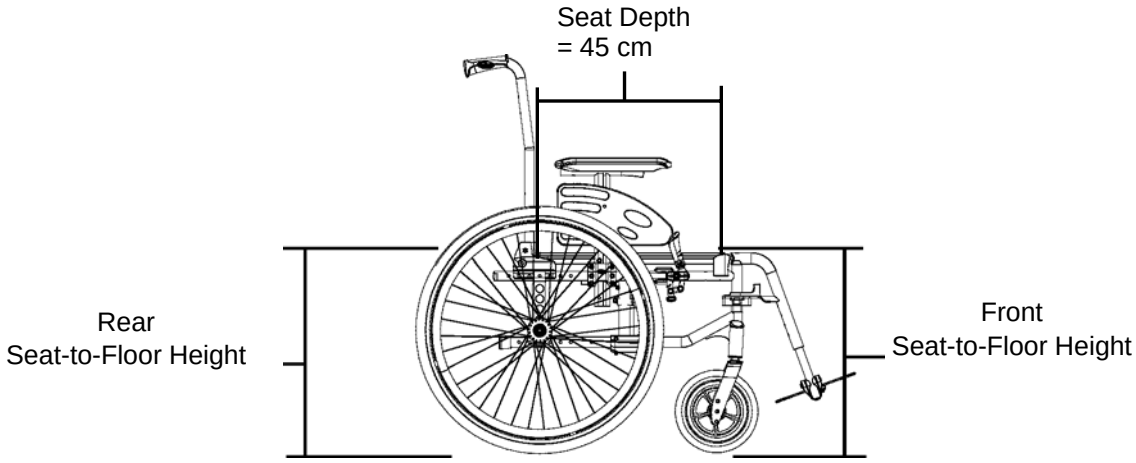
Seat Angle

NOTE: For this procedure, refer to FIGURE 6.1.

NOTE: Refer to Measuring Seat-to-Floor Height paragraph for measuring instructions.

NOTE: Invacare recommends that the rear seat-to-floor height be AT LEAST 2,5 cm shorter than the front seat-to-floor height. Otherwise a forward seat angle can occur.

Subtract the rear seat-to-floor height measurement from the front seat-to-floor height measurement to determine the amount of seat angle as shown in the example in FIGURE 6.1.



Example:

51 cm	Front Seat-to-Floor Height
- 48,5 cm	Minus Rear Seat-to-Floor Height
(3° +/-1°)	Equals Seat Angle

FIGURE 6.1 Seat Angle

⚠ WARNING

Because of the parts mechanical tolerances and all adjustments possible (+/- 1°) the seat angles possible are 0° +/-1° or 3° +/-1° or 6° +/-1° depending of the wheelchair assembly. Refer to table "Seat-to-floor heights" paragraph.

Measuring Seat-to-Floor Height

NOTE: For this procedure, refer to FIGURE 6.2.

NOTE: All measurements are in centimetres. The front and rear seat-to-floor heights are approximate to 0,65 cm due to tyre wear and air pressure.

Measuring Front Seat-to-Floor Height

Front Seat-to-Floor Height: Measure the distance between the front of the seat upholstery and the ground/floor.

Measuring Rear Seat-to-Floor Height

NOTE: The rear seat-to-floor heights are based on pneumatic tyres and pneumatic tyres with flat free inserts. If wheelchair is equipped with urethane tyres, subtract 0,65 cm from the measurement.

Rear Seat-to-Floor Height: Measure distance between the rear of the seat upholstery and the ground/floor.

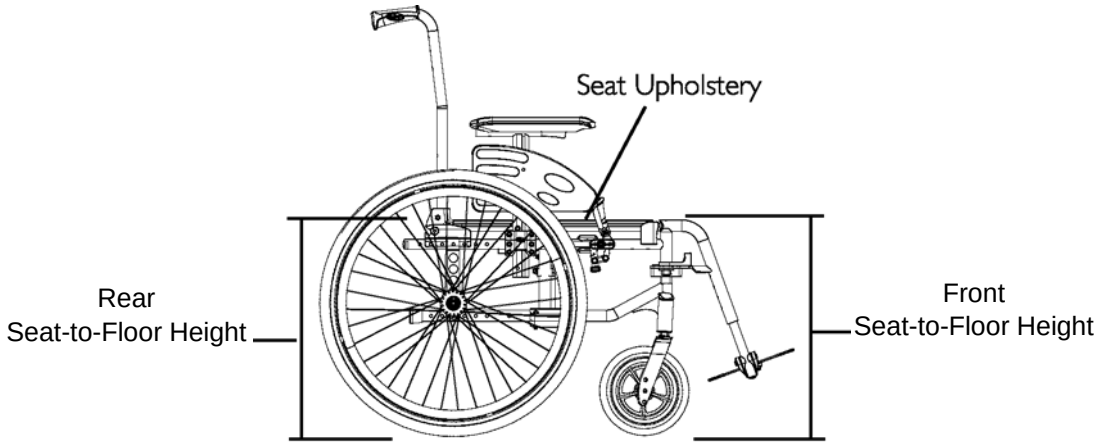


FIGURE 6.2 Seat Angle

Changing Seat-to-Floor Height

⚠ WARNING

The seat height, seat depth, back angle, seating system, size/position of the rear wheels, size/position of the front castors, seating options (e.g. headrest, back bag, ...) as well as the user condition directly relate to the stability of the wheelchair. Any change to one or any combination of the nine may cause the wheelchair to decrease in stability. Refer table on page 8.
Always check castor vertical axis is to 90° +/-1° from the ground.

NOTE: For this procedure, refer to the table to determine adjustment(s) necessary to achieve desired front seat to floor height.

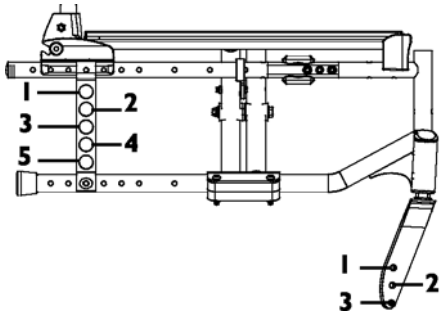
NOTE: In order to obtain the desired front seat to floor height, it will be necessary to perform one or both of the following:

- Changing the castor size and/or mounting position on the fork,. and/or seat angle Refer to Removing/Installing/Repositioning the Castor Assemblies paragraph.
- Changing the fork size or adding/removing height adjustment spacers. Refer to Adjusting Forks paragraph.
- Changing the rear wheel size. Refer to Removing/Installing Rear Wheels paragraph.
- Changing the rear height positioning. Refer to Adjusting Rear Wheel Height paragraph.

CHANGING SEAT-TO-FLOOR HEIGHT

SEAT ANGLE 0°	REAR WHEEL		FRONT CASTOR			
SEAT HEIGHT			Position 1		Position 2	
	22”	24”	6”	8”	6”	8”
41 cm	**3**	**2**	**1**	N/A	N/A	N/A
43,5 cm	**4**	**3**	**2**	N/A	**1**	N/A
45 cm	**5**	**4**	**3**	**2**	**2**	N/A
48,5 cm	N/A	**5**	N/A	**3**	**3**	**2**
51 cm	N/A	N/A	N/A	N/A	N/A	3

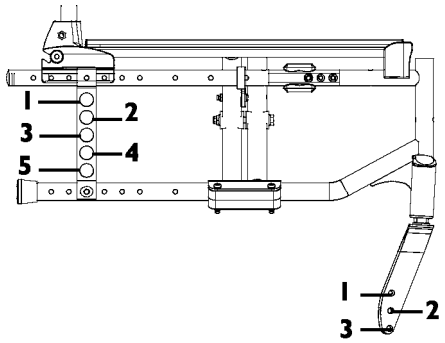
Front Castor Position 1



1

SEAT ANGLE 3°	REAR WHEEL		FRONT CASTOR			
SEAT HEIGHT			Position 1		Position 2	
	22”	24”	6”	8”	6”	8”
41 cm	**2**	**1**	**1**	N/A	N/A	N/A
43,5 cm	**3**	**2**	**2**	N/A	**1**	N/A
45 cm	**4**	**3**	**3**	**2**	**2**	N/A
48,5 cm	**5**	**4**	N/A	**3**	**3**	**2**
51 cm	N/A	**5**	N/A	N/A	N/A	**3**

Front Castor Position 2



2

SEAT ANGLE 6°	REAR WHEEL		FRONT CASTOR			
SEAT HEIGHT			Position 1		Position 2	
	22”	24”	6”	8”	6”	8”
41 cm	**1**	N/A	**1**	N/A	N/A	N/A
43,5 cm	**2**	**1**	**2**	N/A	**1**	N/A
45 cm	**3**	**2**	**3**	**2**	**2**	N/A
48,5 cm	**4**	**3**	N/A	**3**	**3**	**2**
51 cm	**5**	**4**	N/A	N/A	N/A	**3**

SECTION 7—WHEEL BRAKES

⚠ WARNING

After ANY adjustments, repair or service and BEFORE use, make sure all attaching hardware is tightened securely - otherwise injury or damage may occur.
Ensure that the clamp assembly is well positioned in its frame located position.

Adjusting Wheel Brakes

NOTE: When changing the position of the rear wheels, the wheel brakes MUST be repositioned.

NOTE: Before adjusting or replacing the wheel brake assemblies, ensure that the tyres are inflated to the recommended BAR, KPa, P.S.I on the side wall of the tyre.

NOTE: If wheel brakes need replacement, installation must be performed by a qualified technician.

Adjusting Wheel Brake Position

NOTE: For this procedure, refer to FIGURE 7.1.

1. Remove the two mounting screws that secures the wheel brake assembly to the wheelchair frame.
2. Remove the wheel brake assembly from the clamp assembly.
3. Move the clamp assembly (if necessary) to the other wheel brake position on the wheelchair frame.
4. Install the wheel brake assembly into the clamp assembly.
5. Secure the wheel brake assembly to the wheelchair frame with the two mounting screws.
6. Repeat STEPS 1 to 6 for the other wheel brake assembly.

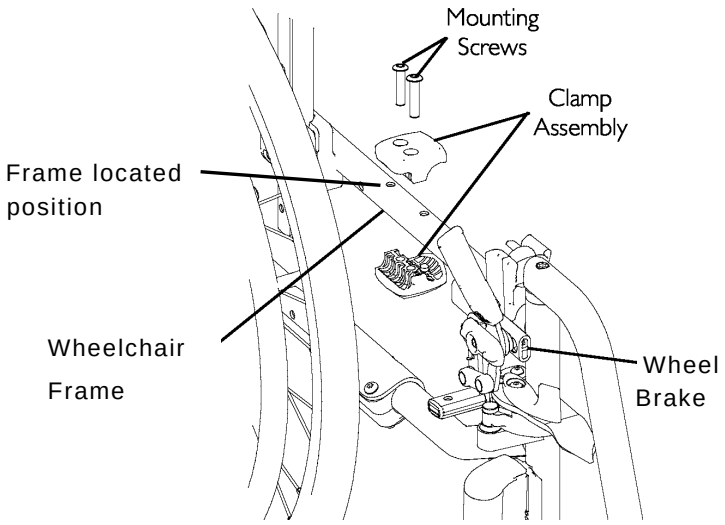


FIGURE 7.1 Adjusting Wheel Brakes - Adjusting Wheel Brake Position

Adjusting Wheel Brake Tension

NOTE: For this procedure, refer to FIGURE 7.2.

1. Loosen, but DO NOT remove the two set screws (Detail –A-) that secure the wheel brake assembly to the wheelchair frame.
2. Measure the distance between the wheel brake shoe and the rear wheel.
3. Slide the wheel lock along the wheelchair frame until the measurement is 0,6 cm for solid tyre and 0,5 cm for pneumatic.
4. Securely tighten the two set screws (Detail –A-).
5. Repeat STEPS 1-4 for the opposite wheel brake.
6. Engage the wheel brakes and push against the wheelchair to determine if the wheel brakes engage the rear wheels enough to hold the occupied wheelchair.
7. Repeat STEPS 1-6 until the wheel brakes engage the rear wheels enough to hold the occupied wheelchair.

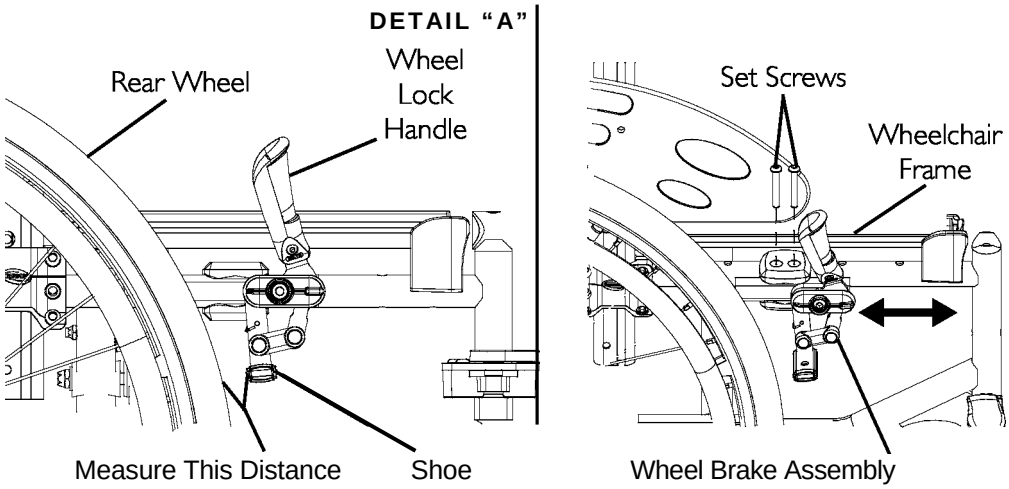


FIGURE 7.2 Adjusting Wheel Brakes- Adjusting Wheel Brake Tension

Replacing Wheel Brake Handle

NOTE: For this procedure, refer to FIGURE 7.3.

1. Remove the mounting screw and locknut that secures the wheel brake handle to the wheel brake assembly.
2. Remove the wheel brake handle and discard.
3. Align the new wheel brake handle with the wheel brake assembly.
4. Secure the new wheel brake handle with the mounting screw and locknut.
5. If necessary, repeat STEPS 1 to 4 for the other wheel brake.

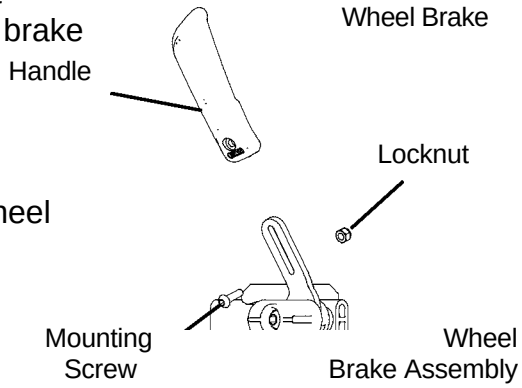


FIGURE 7.3 Replacing Wheel Brake Handle

⚠ WARNING

After ANY adjustments, repair or service and BEFORE use, make sure all attaching hardware is tightened securely - otherwise injury or damage may occur.

Always operate the two brakes simultaneously and do not take slopes exceeding 5° to ensure perfect control of the wheelchair steering.

Hub brakes are running bakes only, always use the manual brakes to secure the wheelchair during short or long stops.

Ensure both hub brakes are adjusted to the same mounting hole.

Installing/Adjusting Hub Brakes

NOTE: After adjusting or replacing the hub brake assemblies, ensure that the tyres are inflated to the recommended BAR, KPa, P.S.I on the side wall of the tyre.

NOTE: If hub brakes need replacement, installation must be performed by a qualified technician.

Installing Hub Brakes

NOTE: For this procedure, refer to FIGURE 7.4 (next page).

1. Remove the rear wheel. Refer to Removing/Installing Rear Wheels paragraph.
2. Remove the locknut and washer that secures the axle bracket to the axle plate.
3. Thread a brake shoe support on a QR axle bush support then add spacer HB.
4. Present the set in front of the axle plate outside of the chair, by directing the brake shoe support following the plan opposite then insert the anti-rotating spacer between the pin of the brake shoes support and the hole of the axle support.
5. Align the hub brake set with one of the five adjustment holes on the axle plate.
6. Secure the hub brake set to the axle plate, at the desired height, with the locknut and washer.

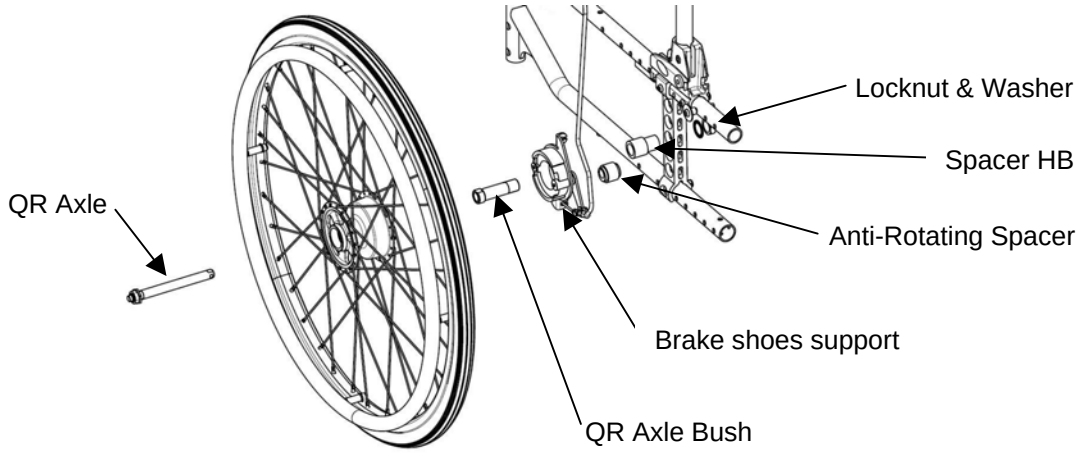


FIGURE 7.4 Installing Hub Brakes

Installing/Adjusting Hub Brake

7. Repeat STEPS 1 to 6 for the other rear wheel.

Installing/adjusting Hub Brake

NOTE: For this procedure, refer to FIGURE 7.5.

1. Install the hub brake lever with the cable on the backrest canes.
2. Secure the cable to the lever of the brake shoes support by tightening the cable bolt
3. Adjust the cable tension to desire brake effort by screw/unscrew the tensional bolt situated on the brake shoes support.
4. Repeat STEPS 1 to 3 for the other side

NOTE: the cable adjustment MUST have the same brake effect on both sides.

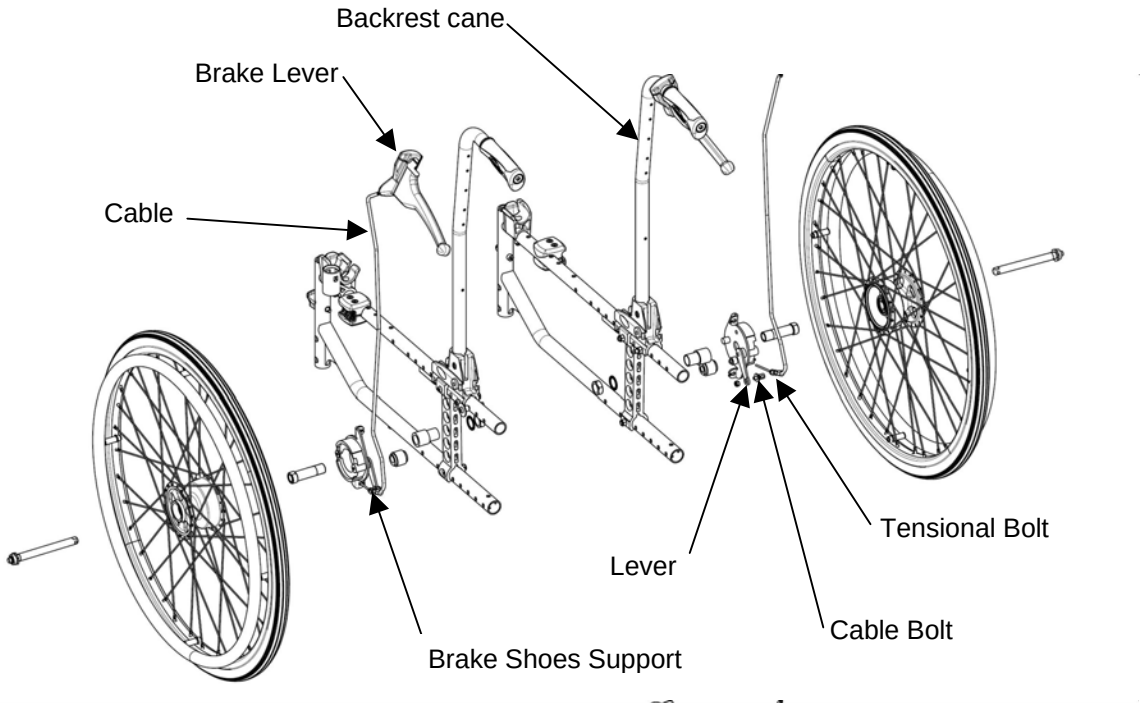


FIGURE 7.5 Installing/Adjusting Hub Brake

SECTION 8—OPTIONS

⚠ WARNING

After ANY adjustments, repair or service and BEFORE use, make sure all attaching hardware is tightened securely - otherwise injury or damage may occur.

Make sure the detent pin and locking pins of the quick-release button are fully released before operating the wheelchair.

The locking pins MUST be protruding past the inside of rear wheel hub for a positive lock. Keep locking pins clean.

Ensure both wheels are adjusted to the same mounting hole.

Installing/Adjusting Dual Handrim (DHR)

Installing Dual Handrim (DHR)

NOTE: For this procedure, refer to FIGURE 8.1.

1. Remove the rear wheel. Refer to Removing/Installing Rear Wheels paragraph.
2. Remove the locknut and washer that secures the axle bracket to the axle plate.
3. Align the DHR Axle bush with one of the five adjustment holes on the axle plate
4. Secure the DHR axle bush to the axle plate, at the desired height, with the locknut and washer. Insert the wheel with the axle DHR wheel axle into the DHR axle bush
5. Repeat STEPS 1 to 6 for the other rear wheel.
6. Insert the gear shaft onto the end of the wheel axle to connect both DHR wheels.

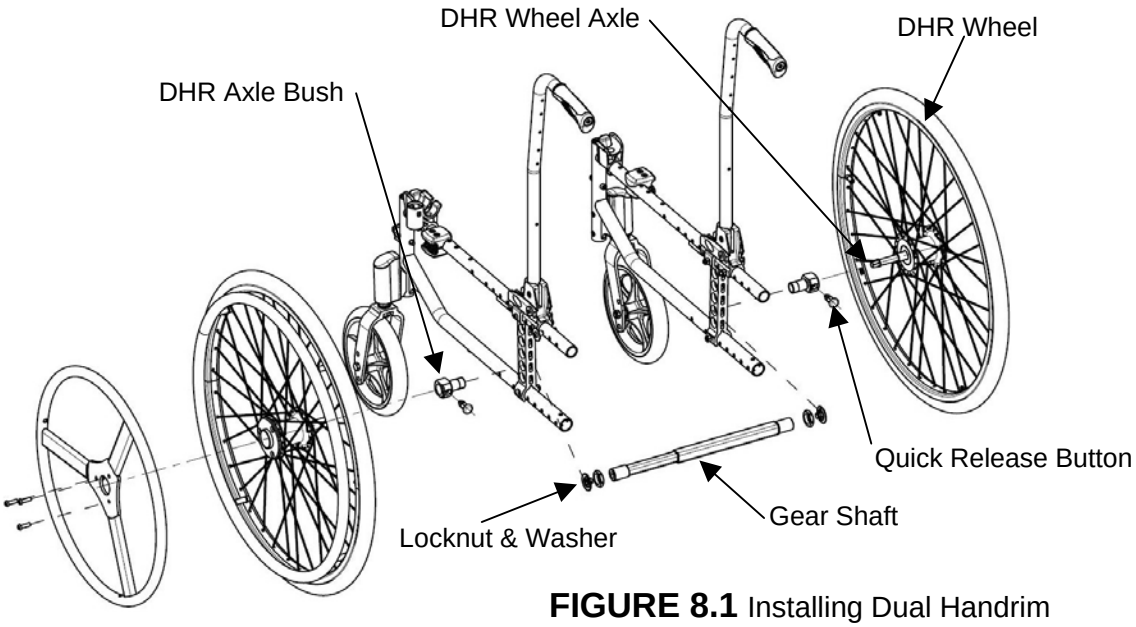


FIGURE 8.1 Installing Dual Handrim

Installing/Adjusting Headrest

⚠ WARNING

After ANY adjustments, repair or service and before use, make sure all attaching hardware is tightened securely - otherwise injury or damage may occur.

Installing Headrest

NOTE: For this procedure, refer to FIGURE 8.2.

1. Install the back brace. Refer to Installing removing the back brace paragraph.
2. Set the mounting clamp (screws, indexable levers and the 3 clamps) in an approximate position around the back brace tube.
3. Introduce the vertical tube that support the headrest cushion into the clamp set.
4. Adjust to the appropriate position with the user sat into the chair, adjust the headrest cushion position and tighten securely all the indexable levers.

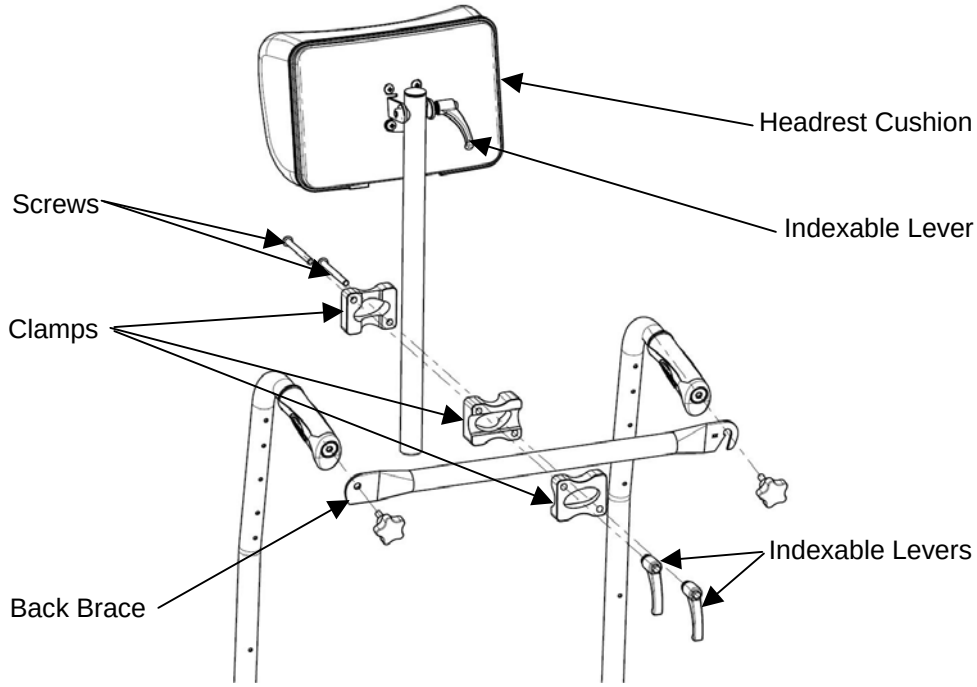


FIGURE 8.2 Installing Headrest

SECTION 9—ANTI-TIPPERS

⚠ WARNING

After ANY adjustments, repair or service and BEFORE use, make sure all attaching hardware is tightened securely - otherwise injury or damage may occur.

Anti-tippers MUST be attached at all times. Inasmuch as the anti-tippers are an option on this wheelchair (you may order it with or without the anti-tippers), Invacare strongly recommends ordering the anti-tippers as an additional safeguard for the wheelchair user.

Anti-tippers MUST be fully engaged and release buttons fully protruding out of adjustment holes.

Ensure both anti-tippers are adjusted to the same mounting hole.

Installing/Adjusting simple Anti-Tippers

Installing Anti-Tippers

NOTE: For this procedure, refer to FIGURE 9.1.

1. Press release buttons in and insert anti-tippers with the anti-tipper wheels pointing toward ground/floor into the rear frame tubing until bottom release button locks in place.
2. Measure the distance between the bottom of the anti-tipper wheels and the ground/floor.
3. *NOTE: A 3 to 5 cm clearance between the bottom of the anti-tipper wheels and the ground/floor MUST be maintained at all times.*
4. If the distance between the bottom of anti-tipper wheels and the ground/floor is not 3 to 5 cm, adjust anti-tippers.

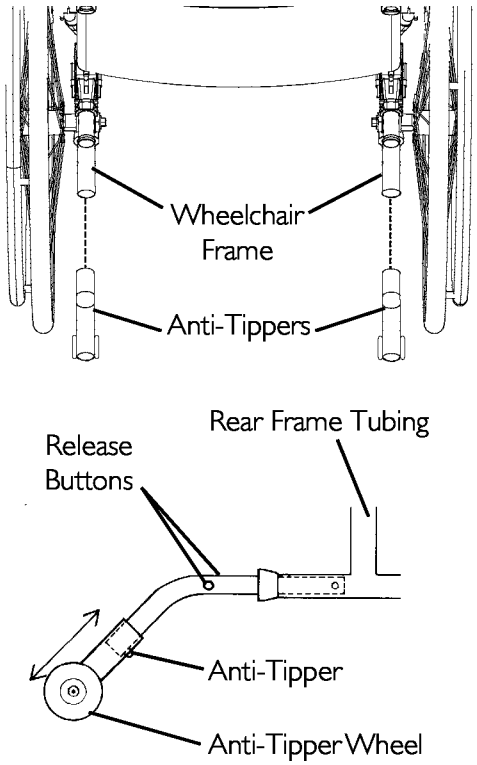


FIGURE 9.1 Installing Simple Anti-Tippers

Installing/Adjusting Anti-Tippers with Tipping Aid

Installing Anti-Tippers with Tipping Aid

NOTE: For this procedure, refer to FIGURE 9.2.

1. Insert anti-tippers with the anti-tipper wheels pointing toward ground/floor into the rear frame tubing until anti-tippers vertical hole appear in the frame vertical hole.
2. Secure the anti-tippers with the mounting set (screw, washer and locking nut) to the wheel chair frame.
3. Measure the distance between the bottom of the anti-tipper wheels and the ground/floor.
4. *NOTE: A 3 to 5 cm clearance between the bottom of the anti-tipper wheels and the ground/floor MUST be maintained at all times.*
5. If the distance between the bottom of anti-tipper wheels and the ground/floor is not 3 to 5 cm, adjust anti-tippers by push down the large washer (refer to detail ”A”).

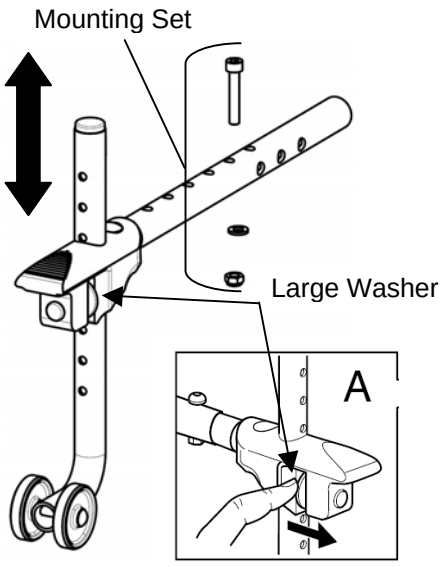


FIGURE 9.2
Installing Anti-Tippers with Tipping Aid

Adjusting Anti-Tippers

NOTE: For this procedure, refer to FIGURE 9.3.

⚠ WARNING

When anti-tippers are used, anti-tippers MUST be adjusted to maintain a 3 to 5 cm clearance between the bottom of the anti-tipper wheels and the ground/ floor. This spacing should always be checked whenever adjustments/changes are made to the wheelchair.
Make sure that the anti-tipper wheel is ALWAYS located out side the rear wheel volume.
Failure to maintain proper spacing may result in the chair tipping over backward causing serious injury or property damage

1. Press the release buttons on the wheeled portion of the anti-tipper and slide it up or down to achieve the 3 to 5 cm clearance.
2. Check to make sure that the release buttons are fully engaged in adjustment holes.

NOTE: Make sure that the anti-tipper wheel is ALWAYS located out side the rear wheel volume.

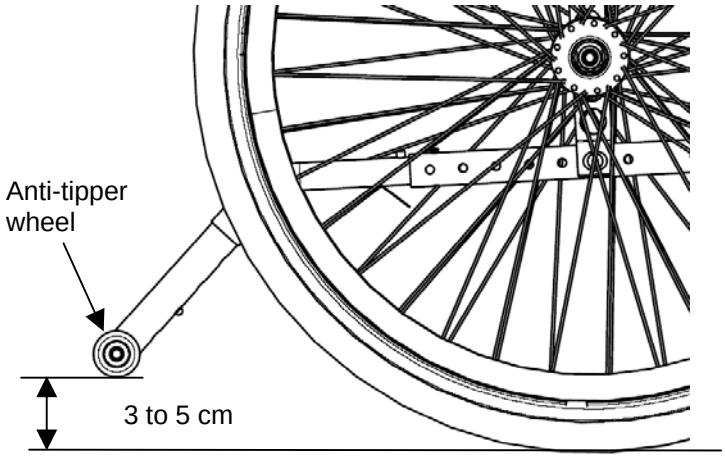


FIGURE 9.3 Adjusting Anti-Tippers

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